City of La Crosse, Wisconsin

City Hall
400 La Crosse Street
La Crosse, WI 54601

Meeting Agenda

Commercial/Multi-Family Design Review Committee

Friday, March 20, 2026 | **9:00 AM** | **Virtual via Zoom**

The meeting is conducted through video conferencing.
Members of the public will be able to attend the meeting via video conferencing with the link below.

Join Zoom Meeting
Click this link (or typing the URL in your web browser address bar):
https://cityoflacrosse-org.zoom.us/j/82799188943?pwd=pAMS3MbJusyBqR9mjCiK3jH6cAP0rk.1

Meeting ID: 827 9918 8943
Passcode: 212646

Dial by your location
1 312 626 6799

If you wish to speak please provide written comments by emailing acklint@cityoflacrosse.org, using a drop box outside of City Hall or mailing the Department of Planning, Development, and Assessment at 400 La Crosse St, WI 54601

Call to Order

Agenda Items:

1. 26-0298 Review of plans for the Commercial Development located at 1822 State Rd 16. (Live Well Chiropractic)

Attachments: Floor Plan & Elevations 3-20-26
LEED Checklist 3-20-26
Project Checklist 3-20-26
Project Application 3-20-26
Civil Plans 3-20-26
Street View Pictures 3-20-26
SW Permit App Live Well AMENDED 3-20-26
SW Permit cover letter AMENDED 3-20-26
ECSW Mgt Plan Complete AMENDED 3-20-26
10-C200 + Drainage Areas AMENDED 3-20-26
10-C400 + Pipe Flows AMENDED 3-20-26

2. 26-0299 Review of the Commercial Addition located at 1516 Losey Blvd. (Coulee Bank)

Attachments: Project Plans 3-20-2026

3. 26-0300 Review of plans for the Multi-Family Development located at 3629 Calvert Road. (15-Unit)

Attachments: Project Application 3-20-2026
Project Renderings 3-20-2026
Prelim Project Plans 3-20-2026

4. 22-0363 Review of plans for the development located at 2415 State Road. (Copper Rocks)

Attachments: REVISED Prelim CSM 3-20-2026
REVISED Prelim Site Plan 3-20-2026
REVISED Prel Stormwater Narrative 3-20-2026
REVISED Prelim Isolines Layout 3-20-2026
REVISED Prelim Landscape Plans 3-20-3026
REVISED Prelim Architecture Plans- 72-Unit Mixed Use 3-20-2026
REVISED Prelim Arch Elevations- 72-Unit Mixed Use 3-20-2026
REVISED Prelim Arch Elevations- Townhome Buildings 3-20-2026
Final Comm Design Standards App 5-27-22
Final Multi Fam Housing Design Standards App 5-27-22
Final Design Checklist 5-27-22
Final Response Letter 5-27-22
Final Stormwater Narrative 5-27-22
Final Sanitary Sewer Flow Memo 5-27-22
Final CSM-Draft 5-27-22
Final Design Review Civil Plan Submittal 5-27-22
Final Landscaping Plan 5-27-22
Final Architecture Plans 5-27-22
Prelim Design Review Memo 3-11-2022
Prelim Project Description Cover Letter 3-11-2022
Prelim Comm Design Standards App 3-11-2022
Prelim Multi Fam Housing Design Standards App 3-11-2022
Prelim - Design Checklist 3-11-2022
Prelim Stormwater Narrative 3-11-2022
Prelim Parking Summary 3-11-2022
Prelim CSM-Draft 3-11-2022
Prelim Site And Grading Plans 3-11-2022
Prelim Architecture Plans 3-11-2022
Prelim Landscape Plan 3-11-2022
Prelim Plant List 3-11-2022

Adjournment

Notice is further given that members of other governmental bodies may be present at the above scheduled meeting to gather information about a subject over which they have decision-making responsibility.

NOTICE TO PERSONS WITH A DISABILITY
Requests from persons with a disability who need assistance to participate in this meeting should call the City Clerk's office at (608) 789-7510 or send an email to ADAcityclerk@cityoflacrosse.org, with as much advance notice as possible.

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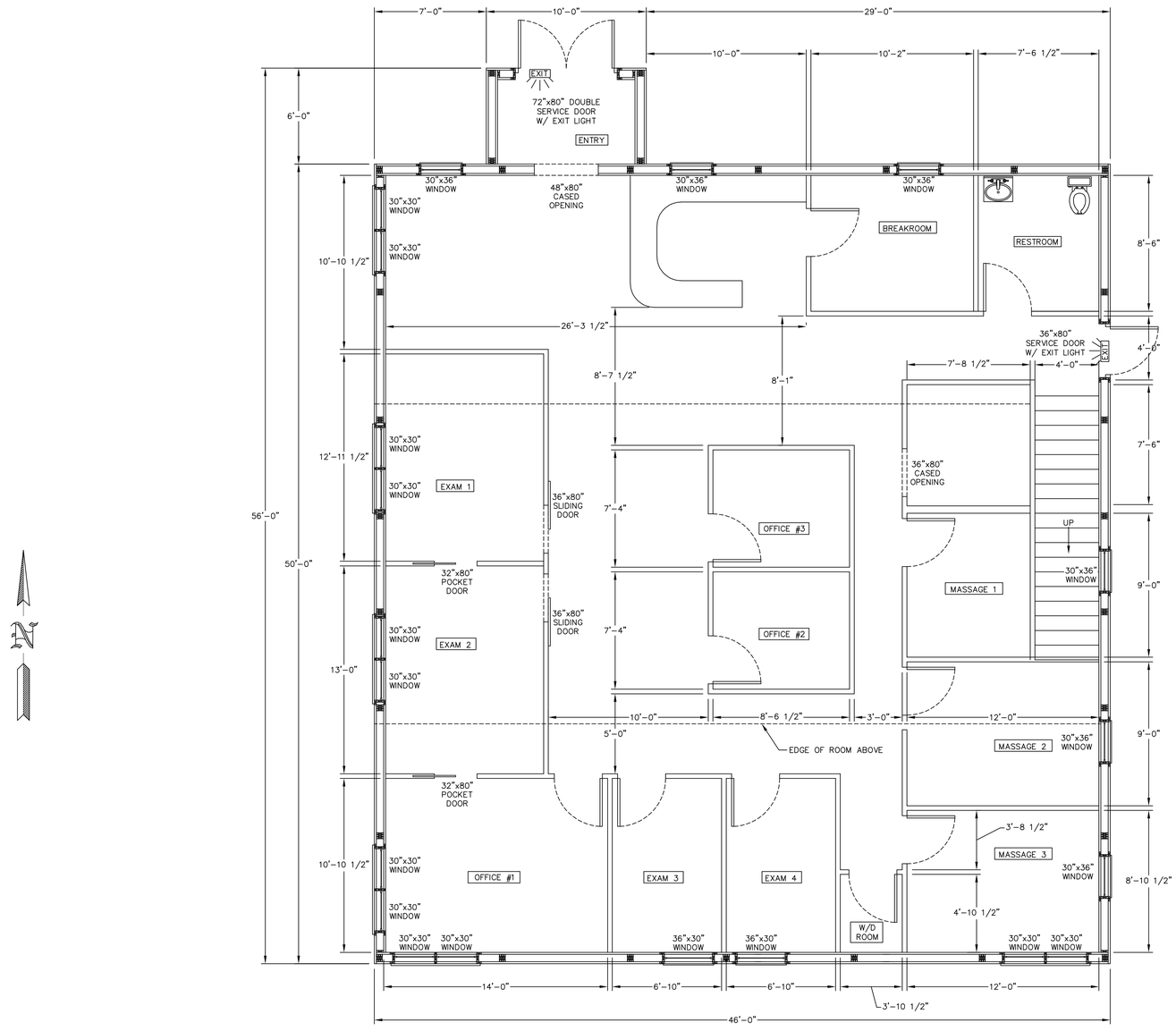
Text File

File Number: 26-0298

Agenda Date: 3/20/2026 **Version:** 1 **Status:** Agenda Ready

In Control: Commercial/Multi-Family Design Review Committee **File Type:** Review of Plans

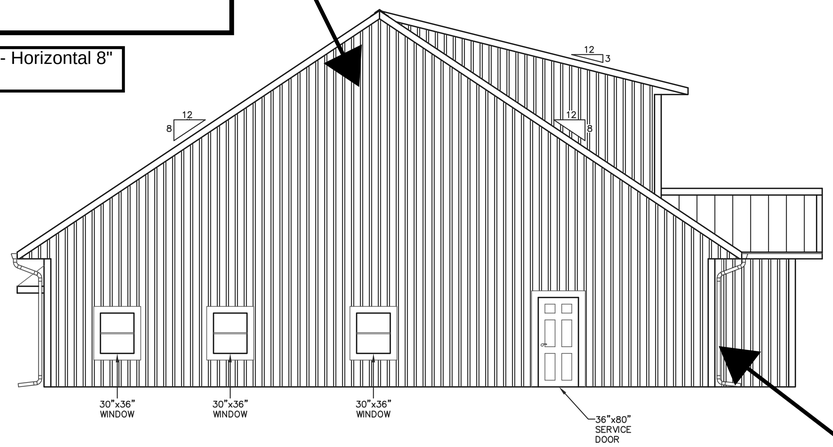
Agenda Number: 1.



FIRST FLOOR INTERIOR LAYOUT

SCALE: 1/4"=1'-0"

Siding: LP SmartSiding - Horizontal 8"
Color: Alabaster



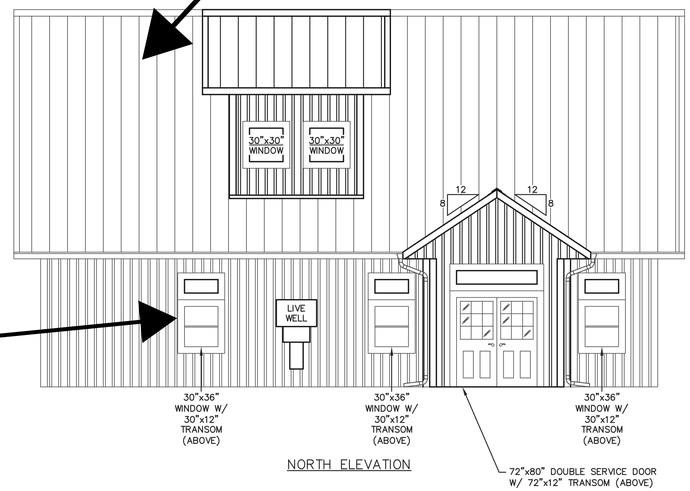
EAST ELEVATION

Windows
Color:Black
Trim: 5 1/2" Alabaster

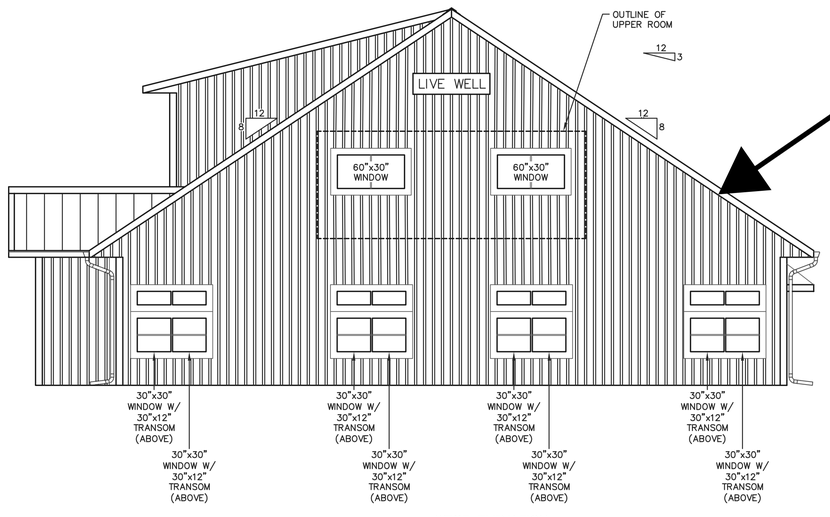
Gutters
Color:Black



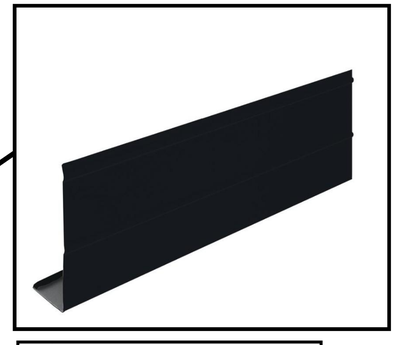
Roof: ProSnap Steel Panel
Color: Midnight Black



NORTH ELEVATION

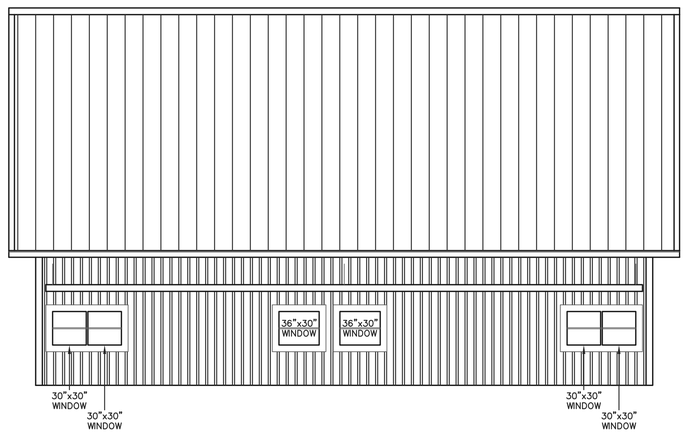


WEST ELEVATION



Facia
Color: Black

ELEVATIONS
SCALE: 3/16"=1'-0"



SOUTH ELEVATION

LEED 2009 for New Construction and Major Renovation

Project Checklist

Project Name

Date

Sustainable Sites — Possible Points: 26

Y	N	?			
Y			Prereq 1	Construction Activity Pollution Prevention	
X			Credit 1	Site Selection	1
	X		Credit 2	Development Density and Community Connectivity	5
	X		Credit 3	Brownfield Redevelopment	1
	X		Credit 4.1	Alternative Transportation—Public Transportation Access	6
	X		Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
	X		Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
	X		Credit 4.4	Alternative Transportation—Parking Capacity	2
	X		Credit 5.1	Site Development—Protect or Restore Habitat	1
	X		Credit 5.2	Site Development—Maximize Open Space	1
X			Credit 6.1	Stormwater Design—Quantity Control	1
X			Credit 6.2	Stormwater Design—Quality Control	1
	X		Credit 7.1	Heat Island Effect—Non-roof	1
	X		Credit 7.2	Heat Island Effect—Roof	1
	X		Credit 8	Light Pollution Reduction	1

3 Water Efficiency — Possible Points: 10

Y			Prereq 1	Water Use Reduction—20% Reduction	
X			Credit 1	Water Efficient Landscaping	2 to 4
	X		Credit 2	Innovative Wastewater Technologies	2
	X		Credit 3	Water Use Reduction	2 to 4

2 Energy and Atmosphere — Possible Points: 35

Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
	X		Credit 1	Optimize Energy Performance	1 to 19
	X		Credit 2	On-Site Renewable Energy	1 to 7
	X		Credit 3	Enhanced Commissioning	2
	X		Credit 4	Enhanced Refrigerant Management	2
	X		Credit 5	Measurement and Verification	3
	X		Credit 6	Green Power	2

0 Materials and Resources — Possible Points: 14

Y			Prereq 1	Storage and Collection of Recyclables	
	X		Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
	X		Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
	X		Credit 2	Construction Waste Management	1 to 2
	X		Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	N	?			
	X		Credit 4	Recycled Content	1 to 2
	X		Credit 5	Regional Materials	1 to 2
	X		Credit 6	Rapidly Renewable Materials	1
	X		Credit 7	Certified Wood	1

0 Indoor Environmental Quality — Possible Points: 15

Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
	X		Credit 1	Outdoor Air Delivery Monitoring	1
	X		Credit 2	Increased Ventilation	1
	X		Credit 3.1	Construction IAQ Management Plan—During Construction	1
	X		Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
	X		Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
	X		Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
	X		Credit 4.3	Low-Emitting Materials—Flooring Systems	1
	X		Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
	X		Credit 5	Indoor Chemical and Pollutant Source Control	1
	X		Credit 6.1	Controllability of Systems—Lighting	1
	X		Credit 6.2	Controllability of Systems—Thermal Comfort	1
	X		Credit 7.1	Thermal Comfort—Design	1
	X		Credit 7.2	Thermal Comfort—Verification	1
	X		Credit 8.1	Daylight and Views—Daylight	1
X			Credit 8.2	Daylight and Views—Views	1

1 Innovation and Design Process — Possible Points: 6

	X		Credit 1.1	Innovation in Design: Specific Title	1
	X		Credit 1.2	Innovation in Design: Specific Title	1
	X		Credit 1.3	Innovation in Design: Specific Title	1
	X		Credit 1.4	Innovation in Design: Specific Title	1
	X		Credit 1.5	Innovation in Design: Specific Title	1
	X		Credit 2	LEED Accredited Professional	1

0 Regional Priority Credits — Possible Points: 4

	X		Credit 1.1	Regional Priority: Specific Credit	1
	X		Credit 1.2	Regional Priority: Specific Credit	1
	X		Credit 1.3	Regional Priority: Specific Credit	1
	X		Credit 1.4	Regional Priority: Specific Credit	1

0 Total — Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

DESIGN REVIEW CHECKLIST

The checklist must be completed in full by the applicant prior to submission. Completed elements should be checked. Any elements that do not apply to your site or you are requesting an exception on, check the corresponding column and include notes. Items in italics are recommended actions but not required.

		YES	NO	N/A	NOTES
PARKING LOT DESIGN AND PARKING STANDARDS					
C.2	No parking stall may be closer to the street than the building setback line or the building on the same parcel, whichever is farther from the street unless the applicant can demonstrate that there are no practical alternatives related specifically to the site.	☐	☒	☐	Adding adjacent parking to approved parking due to no practical alternatives
C.3	All points of ingress and egress will be evaluated by the City Traffic Engineer to determine if ingress and egress should be allowed directly to the street or via an alley.	☐	☐	☒	
C.4	Parking areas shall be separated from primary buildings by a landscaped buffer.	☒	☐	☐	
C.5	Minimum setback for parking stalls and drives is five (5) feet from all property lines with the exception of the alley (in order to accommodate landscaping or drainage swales). Parking for adjacent properties may be combined into continuous paved lots, eliminating the required setback at the shared property line, provided that 100% of the lost green space is replaced elsewhere on the parcel (e.g. with a 10' setback along the opposite lot line).	☒	☐	☐	There is parking proposed along shared lot line
C.6	A parking lot for more than 12 vehicles shall incorporate at least 288 square feet of planting islands at least 8 feet in width (face of curb to face of curb). Planting islands may be either parallel to parking spaces or perpendicular to the parking spaces. As parking lot size increase, and additional planting island is required at the ratio of one planting island for every 20 automobile parking spaces. No less that 5 percent of the islands shall be interior to the parking lot.	☒	☐	☐	
C.7	Landscaping buffers, green space, and planting islands must total a minimum of 10 percent of the lot.	☒	☐	☐	
C.8	Buffers, setbacks, and planting islands are encouraged to be used for stormwater infiltration.	☒	☐	☐	
C.9	All approaches, parking and vehicular circulation areas shall be paved and graded for proper stormwater management. The use of pervious pavement for stormwater infiltration is highly encouraged.	☒	☐	☐	
C.10	For structures not needing approval by the Wisconsin Department of Commerce, parking spaces shall not be less than 8.5 feet in width and 17 feet in length. The full dimensions of this rectangle must be maintained in angled parking designs. Drive aisle widths vary depending upon the angle of parking space. The following minimum standards apply and shall be consistent with requirements of the City Engineering Department adopted standards: 45 degrees – 12'10" aisle 55 degrees – 13'7" aisle 65 degrees – 15'4" aisle 75 degrees – 17'10" aisle 90 degrees – 22' aisle	☒	☐	☐	
C.11	Where maximums on parking ratios exist, parking surfaces and drive aisles shall be permitted to be increased in size by no more than five percent (5%), provided at least twenty-five percent (25%) of the parking lot and pedestrian sidewalks consist of paving blocks (plastic or concrete honeycomb grid) planted with grass.	☐	☐	☒	
C.12	Parking lots shall be located on the same lot as the principal structure (unless it can be demonstrated that shared parking will be beneficial to multiple property owners and does not result in a "gap tooth" effect on a block face).	☒	☐	☐	The shared parking is beneficial to both property owners

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
C.13	Raised curbs, parking blocks or stops, decorative bollards and/or fences, trees and/or shrubs shall be utilized along the edge(s) of parking lots to prevent motor vehicles from parking on green space buffers, outdoor recreation space, bike parking areas, sidewalks and side and front yards. In the event the original protective measures are inadequate to preventing inappropriate parking, additional measures shall be taken.	X			
C.14a	Parking lot snow storage area(s) shall be designated in the parking lot and/or green space buffers.	X			
C.14b	Snow storage areas shall not be located near parking lot entrances and impede driver vision.	X			
C.14c	If these green space buffer(s) are no longer capable of storing snow, the property owner shall arrange for the excess snow to be removed.	X			
C.14.d	To the greatest extent possible, melting snow or ice should not drain over sidewalks or across neighboring properties.	X			
C.15	Light-colored and/or reflective surface coating should be considered to reduce the "heat island" effect of traditional asphalt parking lots.		X		Not practical
C.16	Environmentally-friendly paving materials and methods are encouraged, including but not limited to using recycled asphalt tires and roofing shingles as part of the mix or base.		X		Not practical
C.17	Porous paving materials such as paving blocks with decorative gravel, or properly spaced cobbles, brick, and natural stone with grass planted in between in small clusters and methods that reduce stormwater runoff are encouraged.		X		Not practical
C.18	The off-street parking provisions for all commercial development shall be in conformance with 15.04(G). Required off-street parking space, including access drives and aisles, shall not cover more than seventy-five percent (75%) of the lot area in which such off-street parking space is permitted.	X			
PEDESTRIAN CIRCULATION					
D.2	There shall be a paved pedestrian route from the sidewalk or street to the main building entrance, and from the parking area to the nearest building entrance.			X	
D.3	Pedestrian routes shall be paved with concrete. Bituminous material shall not be allowed for pedestrian routes.	X			
D.4	Porous paving materials and methods that reduce stormwater runoff.is encouraged.		X		Site uses biofilters
BUILDING MECHANICAL SERVICE ELEMENTS					
E.2	The design and location of the following items shall be indicated on building and/or site plans, illustrated with spec sheets as appropriate, and submitted with the Design Standards Checklist:				
E.2a	utility meters	X			
E.2b	building mechanicals	X			
E.2c	trash and recycling containers			X	
E.2d	bicycle parking			X	
E.2e	outdoor seating areas			X	
E.2f	solar and wind facilities			X	
E.2g	dish antennas (not permitted to hang off the side of buildings)			X	
E.2h	transformers	X			
E.2i	back-up generators			X	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
E.3	Service areas, utility meters, and building mechanicals shall not be located on the street side of the building, nor on the side wall closer than 10 feet to the street side of the building. The location of emergency back-up generators and transformers shall be coordinated between the City, developer and the utility company. Screening of meters, generators, transformers, and mechanicals is required when visible from the street with an approved screen device. Screening materials shall match building materials. Cable, conduit and phone line shall not be visible on the exterior with the exception of conduit running directly to the meter/utility boxes at the time of initial occupancy. Mailboxes are permitted within 10 feet of the front of the building if not visible from the street.	☒	☐	☐	
E.4	Trash and recycling containers, including cans and dumpsters, shall have covers and be screened so as not to be visible from the street or from neighboring properties. Screening shall be one foot higher than the container but no higher than six feet; however, roofed enclosures may exceed this limit.	☒	☐	☐	
E.5	If a building owner chooses to provide a trash receptacle and/or a smoking materials receptacle, the receptacle(s) shall be decorative if located at the entrance that faces a public street. These receptacles shall be screened from view and/or designed to fit with the architecture and materials of the building.	☐	☐	☒	
E.6a	High energy gas appliances shall have the air intakes and exhaust vents located on the sides or rear of the building where they do not interfere with any sidewalks, are not likely to be blocked or damaged by pedestrian traffic, snow or the removal of snow, and away from any trees or shrubs that would be harmed by the exhaust heat and gases.	☒	☐	☐	
E.6b	Window-mounted air conditioners shall not be permitted.	☒	☐	☐	
E.6c	PTAC air conditioner/heat pump units must be designed into the architecture of the building.	☐	☐	☒	
E.6d	If heat pumps or air conditioners are located on the ground, they shall be on one side or the rear of the building and screened with evergreens or decorative screening that matches or complements the exterior siding of the building, such that proper clearances are maintained for the manufacturer's warranty.	☒	☐	☐	
E.6e	If heat pumps or air conditioners are located on the roof, they shall be placed, painted and/or screened so as to minimize the visual impact to the street.	☐	☐	☒	
E.7a	Bicycle parking using bike racks specifically designed for bike parking shall be provided at one (1) space per 10 automobile parking spaces or one (1) space per 20 employees, whichever is greater, and should be located near building entries, shall not interfere with pedestrian circulation, and shall be well-lit. Bikes are not permitted to be stored, locked or chained on decks, patios, fences or any other exterior location other than a bike rack specifically designed for bike parking.	☐	☐	☒	
E.7b	Bicycle parking (to accommodate four bicycles) shall be nominally at least nine (9) by six (6) feet or fifty-four (54) square feet and increase by the same ratio to accommodate the number of bike spaces.	☐	☐	☒	
E.7c	The base for bike racks should be concrete to ensure their stability; however, the remaining bicycle parking area shall be porous paving materials (paving blocks with decorative gravel or wood mulch, or properly spaced cobbles, brick, and natural stone with grass planted in between in small clusters) to reduce stormwater runoff but shall not result in standing water. If an area for bike parking is designed using these standards, then up to 100 percent of the space taken for the bike parking shall count as green space.	☒	☐	☐	

DESIGN REVIEW CHECKLIST

LANDSCAPING OPEN SPACE & PLANTINGS		YES	NO	N/A	NOTES
F.2	A landscape design and planting plan shall be prepared and submitted for all buildings. Landscape plans for developments shall be prepared and signed by a Landscape Architect, nurseryman, or professional site planner with educational training or work experience in land analysis and site plan preparation prior to submittal to the City.	X			
F.2a	No building permit shall be issued until the required landscaping plan has been submitted and approved, and no certificate of occupancy shall be issued until the landscaping is completed as certified by an on-site inspection by the Building Inspector, Planning Staff, or other designated official, unless a financial guarantee acceptable to the City has been submitted.	X			
F.2b	Landscape surety. The owner shall provide the City with a cash deposit, bond, or approved letter of credit to guarantee the proper installation and growth of all landscape improvements proposed in the approved landscape plan. Said surety may remain in effect for two full growing seasons. A growing season shall be considered a period from May 1 to September 30. The first year, the amount of the surety will be equal to 100% of the estimated cost of plant material, installation and tree preservation. Once installation has been completed per the approved landscape plan and verified by the City, 75% of the surety will be reimbursed back to the owner. The remaining 25% will be kept by the City for a period of twelve (12) months to cover any maintenance cost that may be needed. Such surety shall be filed with the City Finance Officer.	X			
F.2c	The City may allow an extended period of time for completion of all landscaping if the delay is due to conditions which are reasonably beyond the control of the developer. Extensions may not exceed nine months, and extensions may be granted due to seasonal weather conditions. When an extension is granted, the City may require such additional security and conditions as it deems necessary.	X			
F.3a	The plan shall address all parts of the parcel and shall indicate: Details of all proposed vegetative landscaping materials, including placement, common and botanical names, caliper/height or container size and quantity and maintenance requirements.	X			
F.3b	Details of proposed non-vegetative landscaping and screening materials.	X			
F.3c	Planting and construction schedule for completion of landscaping and screening plans.	X			Fall of 2026
F.3d	Estimated cost from a landscaper on a bid or estimate form of the proposed landscaping.	X			
F.4	All portions of the site not covered by buildings, paving material, or other planned and approved surfaces shall be considered “landscaped area” and shall have a minimum of 4 inches of top soil and be planted with living plant materials and/or mulches. Overall site landscaping shall include not less than:	X			
F.4a	One tree placed in the boulevard per 40 linear feet of lot frontage;			X	
F.4b	Not less than two trees and eight shrubs per 600 square feet of landscaped area. These are minimum standards – more plantings are encouraged.			X	
F.5	All plant material used shall meet the minimum standards established by the American Association of Nurserymen as published in the American Standards for Nursery Stock and shall meet the following minimum requirements:	X			
F.5a	Deciduous trees: 2” dbh (diameter at breast height)	X			
F.5b	Ornamental trees: 2” dbh	X			
F.5c	Evergreen trees: 5’ height	X			
F.5d	Shrubs: 5 gallon container	X			
F.5e	Vines and Perennials: 1 gallon container	X			

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
F.6	Boulevard trees will be installed by the City Forester at City expense if the developer attends City tree school. If the developer installs boulevard trees they shall conform to City street standards. A complete list of trees and shrubs and other reliable plant material that has been approved by the City Forester is available in the City Planning and Development Department.	☐	☐	☒	
F.7	Existing healthy trees should be preserved to the greatest extent practicable and shall be indicated on grading and landscape plans submitted for plan review; however, invasive trees shall be removed. Existing damaged, decayed, or diseased trees should be removed to protect remaining trees. Construction near existing trees should follow Best Management Practices to ensure their survival.	☐	☐	☒	
F.8	Landscaping should reinforce pedestrian circulation routes and obstruct undesired routes of convenience. Bushes, trees, rocks, and other landscape features should be used to indicate where pedestrians should and should not travel.	☒	☐	☐	
F.9a	Provide a five (5) to six (6) foot high solid screen to separate parking lots from abutting residential uses or other non-compatible uses. A solid landscape screen is defined as an evergreen or nearly evergreen mixture (minimum of 65% evergreen) of shrubs, bushes, or trees that produce a dense, sight-obscuring screen at least five (5) to six (6) feet in height within three years of planting. Berms may be included in this definition as long as the maximum height of the berm is five feet; both sides of the berm are planted with evergreen or nearly evergreen shrubs or bushes so that the total height of landscaping and berm will be at least six feet within three years of planting; and top of the berm plantings form a dense, sight-obscuring screen within the same three-year period.	☒	☐	☐	We have a 6' wall
F.9b	Provide a minimum three (3) foot high visual relief screen when adjacent to a street in the form of a hedge, fence, planter, berm, dividers, shrubbery and trees or any combination. The visual relief screen shall extend the length of the parking lot. Three (3) feet in height shall be measured from surface of the parking lot and may be negotiable depending on the elevation of the parking lot in relation to the sidewalk and/or street. All landscaping to form such a visual relief shall be a minimum height of 2 feet at time of planting. Bark or other loose material shall not be placed on berms in these areas since it may be displaced on the street or sidewalk.	☒	☐	☐	Significant natural elevation
F.10a	The property owner shall be responsible for maintenance and replacement of trees, shrubs, grass, ground covers, loose bark or gravel, and sod which are part of the approved landscape plan. If any such plant materials are not maintained or replaced, the City may utilize the required surety to replace the newly planted or protected landscaping or to deem this to be a Municipal Code Violation and issue an Order to Correct.	☒	☐	☐	
F.10b	The owner is responsible for keeping trees in a plumb position. When staking or securing trees is done, it shall occur so as not to create any hazards or unsightly obstacles.	☒	☐	☐	
F.10c	Plants must be maintained to be kept in sound, healthy and vigorous growing conditions and free of disease, insect eggs and larvae.	☒	☐	☐	
F.10d	A sprinkler or lawn irrigation system shall be required in the front yard and boulevard of all developments if lawn or sod is proposed. This standard does not apply to boulevards if sprinkler or lawn irrigation systems are not needed for the front yard.	☐	☐	☒	
WALLS AND FENCES					
G.2	Walls and fences located in the front yard setback shall not exceed six feet in height above the finished grade and shall be at least 50% transparent to retain the visual connection between street and building.	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
G.3	The design and materials for walls and fences shall be coordinated with the design and materials of the principal buildings and should have substantially the same detail. This is not intended to require identical materials and design.	☐	☐	☒	
G.3a	Pressure treated lumber fences shall not be permitted unless stained or painted.	☐	☐	☒	
G.3b	All chain link fences must be plastic coated and shall only be permitted in side yards and backyard, and shall not extend nearer to the street than the front of the building nor used in the side yard on a corner property.	☐	☐	☒	
G.3c	Smooth faced concrete (CMV) blocks or non-architectural poured walls used to construct a wall shall be covered with brick or some other decorative block or dimensional material such as a stained block product. Painted or colored smooth-faced concrete bricks or blocks shall not be considered decorative block.	☒	☐	☐	
G.4	Walls and fences shall provide variety and articulation at each end and at intervals not exceeding 25 feet through at least one of the following methods: Changes in plane of not less than one (1) foot; Expression of structure, such as post, column, or pilaster; Variation of material; or Landscaping	☒	☐	☐	
STORMWATER INFILTRATION AND CONTROL					
H.2	A stormwater management and erosion control plan shall be required for all new construction, shall be coordinated with the Landscaping and Open Space Plan, and shall be designed by either a Registered Architect, Landscape Architect or a Professional Civil Engineer in accordance with the City of La Crosse's Stormwater Management Ordinance and shall include a maintenance plan and agreement.	☒	☐	☐	
H.2a	Until such time as the City adopts a stormwater management ordinance, the City shall use the La Crosse County Stormwater Management Ordinance.	☒	☐	☐	
H.2b	For parcels less than ¼ acre in size, the City shall work with the property owner/developer/applicant to develop a practical site-specific stormwater management plan that allows for flexibility in the use of stormwater treatment devices including rain barrels, rain gardens, swales, cisterns, drain tiles, soil amendments, porous pavements, grass pavers for overflow parking areas, etc.	☒	☐	☐	
H.3	The use of bio-cells, living roofs and rain gardens is encouraged due to their aesthetic as well as utilitarian benefits.	☒	☐	☐	
H.4	Newly concentrated stormwater, such as that from rooftop, impervious surface, or swales, shall not be directed onto or across adjacent properties or across sidewalks. Rooftop stormwater shall not be discharged within 5 feet of a sidewalk unless an intervening landscape element is used to promote infiltration, such as a rain garden.	☒	☐	☐	
H.5	Stormwater detention and infiltration facilities shall be designed as visual and open space amenities that enhance the overall appearance of the site.	☒	☐	☐	
EXTERIOR LIGHTING					
I.2	All exterior lights shall be designed for commercial use. A lighting plan showing lighting levels on-site and at the property line as well as spec sheets with pictures must be submitted with the Design Standards Checklist for each exterior light to be used.	☒	☐	☐	
I.3	Pedestrian lighting shall clearly indicate the path of travel, shall minimize dark spots along that path, and shall utilize coordinated light fixtures.	☐	☐	☒	
I.4	The maximum height of wall-mounted parking lot light fixtures shall be 16 feet above the ground. Pole-mounted fixtures are acceptable but not required and will have a maximum height of 30 feet from the ground to the top of the fixture. Fixtures shall be of full-cut-off (FCO) design to minimize glare and spillover.	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
I.5	Ornamental lighting to light the building façade is permitted provided that the light source is not visible from the property line and is designed to minimize glare and spillover.	☐	☐	☒	
I.6	No overhead light source (i.e., the lamp or reflector) shall be visible from the property line. Shields may be employed, if necessary, to meet this requirement. The maximum allowable luminance measured 25 feet beyond the property line shall be .05 horizontal foot-candles (HFC).	☐	☐	☒	
I.7	Lighting levels for parking lots and pedestrian routes: (horizontal luminance measured in foot-candles):	☐	☐	☒	
I.7a	Average: 2.4 foot-candles	☐	☐	☒	
I.7b	Minimum: 1.0 foot-candles	☐	☐	☒	
I.7c	Uniformity Ratio (Bright spots to dark spots): 4:1	☐	☐	☒	
I.7d	Maximum Average: .5 foot-candles	☐	☐	☒	
I.8	Each exterior entry to structures on the property shall have an exterior light.	☒	☐	☐	
I.9	For properties adjacent to residential uses, motion sensor flood or spot lights shall have shrouds, be limited to two (2) bulbs pointed at least thirty degrees downward and not directly into windows or doors of neighboring building and the light sources shall not be visible from the street.	☐	☐	☒	
	PATIOS, PORCHES, DECKS, AND ROOFTOP GARDENS/DECKS				
J.2	Every residential unit is encouraged to have its own patio or balcony and shall be incorporated into the architectural façade of the building and may encroach into the building setback area but not more than 25%. Commercial structures are also permitted to have exterior balconies. No patio or balcony can hang over a sidewalk.	☐	☐	☒	
J.3	For commercial developments, ground level patios or decks for customer seating are permitted in the setback areas and should include some screening for noise.	☐	☐	☒	
J.4	Exterior stairs leading to a deck or balcony are permitted provided that they are decorative and are architecturally compatible with the building and constructed of compatible materials. Exterior corridors visible from a street are not permitted.	☐	☐	☒	
J.5	Rooftop green roofs or rooftop patios and decks are permitted and if intended for occupied use shall have a railing height or parapet of at least 42 inches. Only outdoor furniture is permitted.	☐	☐	☒	
	BUILDING DESIGN: FORM, SCALE AND CONTEXT				
K.2	Photos of at least four (4) street views of nearby blocks shall be submitted with the Design Standards checklist.	☒	☐	☐	
K.3	Buildings shall be designed to provide human scale, interest, and variety. The following techniques may be used to meet this objective:	☒	☐	☐	
K.3a	Variation in the building form such as recessed or projecting bays, shifts in massing, or distinct roof shapes.	☒	☐	☐	
K.3b	Emphasis of building entries through projecting or recessed forms, detail, color, or materials.	☒	☐	☐	
K.3c	Variation of material, modules, expressed joints and details, surface relief, color, and texture to break up large building forms and wall surfaces. Such detailing could include sills, headers, belt courses, reveals, pilasters, window bays, and similar features.	☐	☒	☐	This is not a large building
K.4	For all non-manufacturing or retail buildings, where the allowable building is more than 50% wider than adjacent buildings, one of the following techniques shall be employed to minimize the apparent width of the primary façade:	☐	☐	☒	This building is much smaller than adjacent building
K.4a	Articulate the façade with projections or bays.	☒	☐	☐	
K.4b	Use architectural elements such as column, canopies, glass, changes in materials, and covered entries to interrupt the façade.	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
K.5	The first floor façade shall include windows to provide visual interest and visual connection to the street. The total area of windows and doors on the street-facing façade, including trim, shall not be less than 20% of the total area of the façade, excluding gables.	X			
K.6	Buildings shall be built to the front yard setback line. In highway commercial areas, the building setback shall not be greater than 25 feet and no parking is permitted in the front yard setback area.		X		
K.7	Commercial buildings within Historic Districts or adjacent to any designated historic building must first receive DRC review and approval prior to submittal to the Heritage Preservation Commission for their review. Approval by the Heritage Preservation Commission is necessary prior to the issuance of any building permit. The developer can appeal to the City Plan commission if denied by the Heritage Preservation Commission.			X	
	BUILDING ENTRANCES, DETAILS, TRIM, DOORS AND WINDOWS				
L.2	The primary entrance to the building shall be covered at least three (3) feet from the door. Entrance features may encroach into the front yard setback a maximum of three (3) feet. Building entrances shall be emphasized through projecting or recessing forms, detail, color or materials. Buildings shall be oriented toward the street with pedestrian access.	X			
L.3	All openings shall be articulated or appropriately trimmed through the use of materials such as flat or arched lintels, projecting sills, or surrounds.	X			
L.4a	All windows shall be in keeping with the architectural character of the building.	X			
L.4b	All windows shall have an interior locking or securing mechanism.	X			
L.4c	For mixed used developments that include residential units, exterior entry doors for individual units shall be residential in style (real or decorative styles, rails or panels) solid or insulated or multiple units may be commercial in style (glass). If the door does not have a translucent window lower than five (5) feet, it shall have a security peephole.			X	
	ROOFS AND ROOF LINES				
M.2	Any roof style such as hip, gambrel, mansard, colonial, flat or another roof style is permitted so long as the roof pitch is appropriate to the architectural style of the building (e.g. prairie school) and the roof element contains additional architectural elements such as dormers, long overhangs, windows or other feature.	X			
M.3	Flat roofs are permitted, and must incorporate a parapet wall on all sides, unless the rear side of the building is sloped for drainage. The parapet should include architectural details appropriate to the building design that create a positive visual termination for the building (a "top").			X	
M.4	A minimum of 50% of a building's linear roof drip edge should fall to ground surfaces that do not contain impervious surface. If gutters or other stormwater drains toward neighboring properties, then water shall be directed to an onsite rain garden(s) designed to retain a 0.5 inch-1hr rainfall. For information regarding directing clean roof water to rain gardens, the Wisconsin DNR and UW-Extension have extensive publications on the proper calculation for the size and planting materials for rain gardens in Wisconsin.	X			
	EXTERIOR MATERIALS				
N.2	The use of identical materials on all sides of the building is encouraged; however; higher-quality materials on street-facing façade and complementary materials on other façade is acceptable.	X			
N.3	Use of decorative accessories and trim is highly encouraged.	X			

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
N.4	Vinyl, plywood, chipboard, T1-11, asphalt siding, non-architectural metal siding and smooth-faced concrete block are prohibited as exterior finish materials unless the architect can demonstrate that the materials are appropriate to the design of the building. Treated wood shall be painted or stained.	☒	☐	☐	
N.5	Natural wood shall be painted or stained, unless it is cedar, redwood or some other naturally weather resistant species and is intended to be exposed.	☒	☐	☐	
N.6a	Since the selection of building colors has a significant aesthetic and visual impact upon the public and neighboring properties, as well as an impact on the energy use and comfort of customers and tenants, designs and color shall be selected in general harmony with the overall existing neighborhood.	☒	☐	☐	
N.6b	Neutral or natural colors for the primary siding material with brighter or darker colors for accent and trim that provide for a more interesting building and are cooler in the summer are preferred.	☒	☐	☐	
N.6c	Complementary multi-color and textured roofing materials that provide for a more interesting building and are cooler in the summer are preferred.	☒	☐	☐	
	GARAGES AND ACCESSORY BUILDINGS				
O.2	Street-facing overhead doors on garages are not permitted on lots served by an alley.	☐	☐	☒	
O.3	The cumulative length of all garage doors facing the street shall not exceed 50% of the total length of the street-facing elevation unless architecturally justified.	☐	☐	☒	
O.4	Accessory buildings shall be architecturally compatible and be constructed of the same materials as the primary building(s). All changes to the approved plans such as the addition of an accessory structure shall be approved by the Design Review Committee if not submitted at the time of initial review.	☐	☐	☒	
	BUILDING CONSTRUCTION				
P.2	A completed LEED checklist must be submitted with the Design Standards checklist to demonstrate compliance with the standard.	☒	☐	☐	
	BUILDING, PROPERTY AND LANDSCAPING MAINTENANCE				
Q.2	All commercial structures and buildings that are developed and constructed under this ordinance shall maintain the property through an ongoing maintenance program. The maintenance program is to include all exterior aspects of the development and include but is not limited to parking lots, building mechanicals, service elements, customer and tenant amenities, landscaping open space and plantings, wall and fences, signage, stormwater facilities, exterior lighting, patios and decks, exterior finishes, windows, architectural detail, and accessory structures.	☒	☐	☐	
Q.3	The project shall be maintained over the life of the development in a like-new condition with an on-going maintenance program that adheres to the intent of the original building plans and is subject to inspection by the City at anytime. Failure to maintain the project may subject the property to fines as permitted under this Chapter and the City of La Crosse Stormwater Management Ordinance. (#4513-7/9/09)	☒	☐	☐	

COMMERCIAL DEVELOPMENT DESIGN STANDARDS APPLICATION

Planning Department · Phone 608.789.7512 · Fax 608 789.7318
http://www.cityoflacrossse.org Planning@cityoflacrosse.org

Permit No.:	
Date:	
STATUS:	Parcel No.:

OWNER

Name: Angela Frank			
Address: 1810 Pine Ridge Drive			
City: Onalaska, WI 54650			
Phone: (608)782-6800	Cell:	Fax:	E-mail:drangelafrank@gmail.com

ARCHITECT CONTRACTOR

Name: Paragon Associates			
Address: 632 Copeland Avenue			
City: La Crosse, WI 54603			
Phone: (608)781-3110	Cell:	Fax:	E-mail:jeffm@paragon-assoc.biz

PROJECT

Check One: ☒ Building ☐ Addition ☐ Alteration/Remodel

Description of Work:
Construction of a 2,360 square foot chiropractic office and site work including parking, stormwater management, site restoration and landscaping.

Pre-application Meeting Date:

Applying for Exception: ☐ No ☐ Yes (Include $300 Check for Public Notification)

PROPERTY

Project Address: 1822 State Road 16		
Zoning District: C2 - Commercial	Parcel Number: 17-10460-110	
Address:	Address same as property owner's address: ☐	
City: La Crosse	State: Wisconsin	Zip Code: 54650

OFFICIAL USE ONLY

Date Received: Review Date:

Exception Check: ☐ Yes ☐ No

Required Information: ☐ Site Plan ☐ Architecture Plan ☐ Landscape Plan ☐ Building Elevations & Materials ☐ Exterior Light Diagram ☐ LEED Checklist ☐ Photos

The applicant agrees that all design aspects and maintenance plans are in accordance with the requirements of Section 15.47 of the Code of Ordinances for the City of La Crosse. Application, the checklist, and seven (7) sets of required information must be submitted to the City Inspection Department prior to review and acceptance.

Jeffrey S. Moorhouse
(PRINT) Architect/Engineer Name

Signature (Architect/Engineer) 03/13/26 Date

Angela L. Frank
(Print) Owner Name

Signature (Owner) 3-13-26 Date

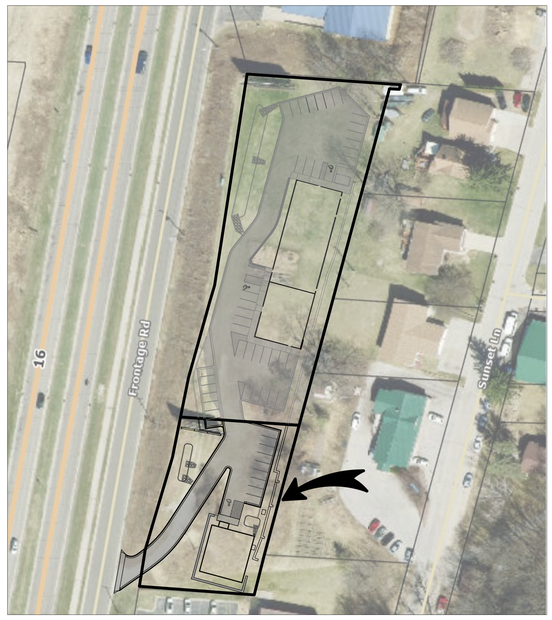
LIVE WELL CHIROPRACTIC

PROJECT LOCATION:

1822 STATE ROAD 16
LA CROSSE, WISCONSIN



PROJECT VICINITY MAP



PROJECT LOCATION MAP

INDEX OF DRAWINGS

C000	COVER
C001	TOPOGRAPHIC SITE MAP
C100	SITE PLAN
C200	GRADING PLAN
C300	EROSION CONTROL PLAN
C400	UTILITY PLAN
C500-C501	DETAILS
L100	LANDSCAPE PLAN

REVISIONS	DATE

PARAGON ASSOCIATES
Environmental Design & Consulting
CIVIL ENGINEERING . LANDSCAPE ARCHITECTURE . SURVEYING
632 COPELAND AVENUE . LA CROSSE, WI 54603
Tel.608.781.3110 Fax.608.781.3197 Paragon-Assoc.biz

PREPARED FOR:
DALE JACOBSON

HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN

COVER

DRAWN	C.G.
PROJECT No	25-089
DATE	03/13/2026
SCALE	NOT TO SCALE
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	C001

EXISTING CONDITIONS GENERAL NOTES

- THE UNDERGROUND LOCATIONS OF THE PUBLIC UTILITIES WERE MARKED BY REPRESENTATIVES OF THOSE COMPANIES VIA DIGGER'S LOCATE REQUEST.
- THE LOCATIONS OF THE PRIVATELY OWNED UNDERGROUND UTILITIES WERE NOT MARKED.
- THE LOCATION OF EXISTING UTILITIES, BOTH UNDERGROUND AND OVERHEAD ARE APPROXIMATE ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THESE PLANS OR NOT, BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES. **DIAL 811 OR (800) 242-8511**
- THERE MAY BE MORE UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
- ANY AND ALL PARTIES UTILIZING VERTICAL DATUM SHALL ALWAYS CHECK INTO AT LEAST TWO (2) BENCHMARKS TO AVOID MISTAKES DUE TO HYDRANT ADJUSTMENTS OR TRANSPOSITIONAL ERRORS. FAILURE TO DO SO WILL BE CONSIDERED TANTAMOUNT TO GROSS NEGLIGENCE AND SUBJECT THE OFFENDING PARTY TO ANY DAMAGES RESULTING THEREFROM.
- THIS DOCUMENT HAS BEEN PREPARED FOR A SPECIFIC APPLICATION AND SOLELY FOR THE USE OF DALE JACOBSON AND NOT FOR GENERAL USE. IT MAY NOT BE USED WITHOUT THE EXPRESSED WRITTEN CONSENT OF PARAGON ASSOCIATES, INC. UNAPPROVED USE IS THE SOLE RESPONSIBILITY OF THE UNAUTHORIZED USER.
- THE SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD OR ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP TITLE EVIDENCE, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE. EASEMENTS THAT ARE SHOWN ARE BASED ON DOCUMENTS FROM OUR FILES, AND MAY OR MAY NOT HAVE BEEN VACATED. OTHER EASEMENTS MAY EXIST ON THE PROPERTY SURVEYED.
- THIS DOCUMENT IS BEING FURNISHED TO DALE JACOBSON IN THE FORM OF AN AUTOCAD DRAWING. THE PURPOSE OF THE AUTOCAD DRAWING IS FOR USE WITHIN THE AUTOCAD SOFTWARE PROGRAM WITH THE UNDERSTANDING THAT THE CAPABILITY OF AUTOCAD TO DIMENSION AN ELEMENT OF A DRAWING EXCEEDS THE DEGREE OF PRECISION TO WHICH THAT ELEMENT MAY HAVE BEEN LOCATED. FIELD VERIFICATION MAY BE NECESSARY BEFORE DESIGN IS FINALIZED.

LEGAL DESCRIPTION - PARCEL A

PART OF GOVERNMENT LOT 7 OF SECTION 21, T16N, R7W, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN. FURTHER DESCRIBED AS FOLLOWS:

COLD SPRINGS ADDITION LOTS 14, 15, 16, 17, 18, 19, 20, 21, 22 AND C OF BLOCK 2 AND THE WEST HALF OF THE VACATED ALLEY ADJACENT TO SAID LOTS 14, 15, 16, 17, 18, 19, 20, 21, 22 OF BLOCK 2.

EXCEPT FOR PART TAKEN FOR HIGHWAY PURPOSES.

THE ABOVE DESCRIBED LANDS CONTAIN 48,336 SQUARE FEET, OR 1.11 ACRES AS SURVEYED.

THE ABOVE DESCRIBED LANDS ARE SUBJECT TO ALL COVENANTS, RESTRICTIONS AND EASEMENTS, IMPLIED OR RECORDED.

LEGAL DESCRIPTION - PARCEL B

PART OF GOVERNMENT LOT 7 OF SECTION 21, T16N, R7W, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN. FURTHER DESCRIBED AS FOLLOWS:

COLD SPRINGS ADDITION LOTS 12 AND 13 OF BLOCK 2, LOT 20 OF BLOCK 3, PART OF VACATED SPRING STREET ADJACENT TO LOT 12 OF BLOCK 2 AND LOT 20 OF BLOCK 3 AND THE WEST HALF OF THE VACATED ALLEY ADJACENT TO LOTS 12 AND 13 OF BLOCK 2 AND LOT 20 OF BLOCK 3.

EXCEPT FOR PART TAKEN FOR HIGHWAY PURPOSES.

THE ABOVE DESCRIBED LANDS CONTAIN 21,999 SQUARE FEET, OR 0.50 ACRES AS SURVEYED.

THE ABOVE DESCRIBED LANDS ARE SUBJECT TO ALL COVENANTS, RESTRICTIONS AND EASEMENTS, IMPLIED OR RECORDED.

LEGEND

- FOUND 1-1/4" O.D. IRON PIPE *(UNLESS NOTED)*
- FOUND 3/4" O.D. IRON BAR *(UNLESS NOTED)*
- 680 CONTOUR MAJOR
- 679 CONTOUR MINOR
- 678.24 SPOT ELEVATION *(HARD SURFACE)*
- 678.2 SPOT ELEVATION *(SOFT SURFACE)*
- 680.757 / 680.258 SPOT ELEVATION TOP / BOTTOM OF CURB
- SANITARY SEWER (FLOW DIRECTION)
- STORM SEWER (FLOW DIRECTION)
- W WATERMAIN
- OHU OVERHEAD UTILITIES
- GAS GAS
- COM COMMUNICATIONS
- SANITARY MANHOLE
- STORM MANHOLE
- CURB INLET
- HYDRANT
- CURB STOP
- WATER VALVE
- UTILITY POLE
- GUY ANCHOR
- COMMUNICATIONS PEDESTAL
- ELECTRIC METER
- DECIDUOUS TREE, *SIZE NOTED*
- CONIFEROUS TREE, *SIZE NOTED*
- ASPH
- CONC
- GRAVEL

S86°02'12"E 160.55'

S15°02'12"W 504.81'

S14°02'29"W 42.37'

S85°56'48"E 124.07'

N8°44'43"E 223.14'

N16°15'15"E 19.69'

N15°40'38"E 80.43'

N11°24'27"E 42.06'

N11°24'41"E 43.03'

N16°22'27"E 100.53'

N9°01'08"E 38.71'

N85°43'14"W 120.21'

PARCEL A
48,336 S.F. / 1.11 AC.

PARCEL B
21,999 S.F. / 0.50 AC.

BM TNH
EL = 663.67

BM TNH
EL = 665.74

UNABLE TO DETERMINE THE END OF THIS PIPE

STORM INLET
RIM = 659.19
INV. SE (in) = 656.39
INV. N (out) = 656.03
BOTTOM = 655.57

STORM INLET
RIM = 659.98
INV. W (out) = 654.37

STORM INLET
RIM = 659.98

STORM INLET
RIM = 659.06

STORM INLET
RIM = 660.54
INV. SW (out) = 657.68

STORM INLET
RIM = 661.70
INV. NW (out) = 658.36

STORM INLET
RIM = 660.14

STORM MH
RIM = 661.41

SANITARY MH
RIM = 660.44

SANITARY MH
RIM = 661.90

NEW 2" HDPE WATER SERVICE

SOIL TEST APPROX
EL = 677.79

SOIL TEST APPROX
EL = 679.62

SOIL TEST APPROX
EL = 679.17

SOIL TEST APPROX
EL = 675.80

CONEX STORAGE

SIGN EASEMENT

SIGN EASEMENT

ACCESS EASEMENT

FRONTAGE ROAD

EAST CURB OF NORTHBOUND LANES OF HWY 16

16 S.T.H. 16 NORTHBOUND LANES

PLAN SCALE: 1"=20'

PREPARED FOR:
DALE JACOBSON

PARAGON ASSOCIATES
Environmental Design & Consulting
CIVIL ENGINEERING . LANDSCAPE ARCHITECTURE . SURVEYING
632 COPELAND AVENUE . LA CROSSE, WI 54603
Tel.608.781.3110 Fax.608.781.3197 Paragon-Assoc.biz

REVISIONS	BY

HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
TOPOGRAPHIC SITE MAP

DRAWN	C.G.
PROJECT No	25-089
DATE	03/13/2026
SCALE	1"=20'
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	C010

SITE NOTES

-The location of existing utilities, both underground and overhead are approximate only and have not been independently verified by the owner or its representatives. The contractor shall be responsible for determining the exact location of all existing utilities, whether shown on these plans or not, before commencing work, and shall be fully responsible for any and all damages which might be caused by the contractor's failure to exactly locate and preserve any and all utilities. CALL DIGGERS HOTLINE (800) 242-8511

-The underground locations of the Public Utilities were marked by representatives of those companies. The locations of the privately owned underground utilities were not marked.

-There may be more underground utility installations within the project area that are not shown.

-It shall be the contractors responsibility to arrange for any necessary inspections by local government that may be required.

-Any and all parties utilizing vertical datum shall always check into at least two (2) benchmarks to avoid mistakes due to hydrant adjustments or transpositional errors. failure to do so will be considered tantamount to gross negligence and subject the offending party to any damages resulting therefrom.

-There may be discrepancies between the building exterior as located on the survey and what was provided by the architect. Verify dimensions prior to construction.

DEMOLITION NOTES

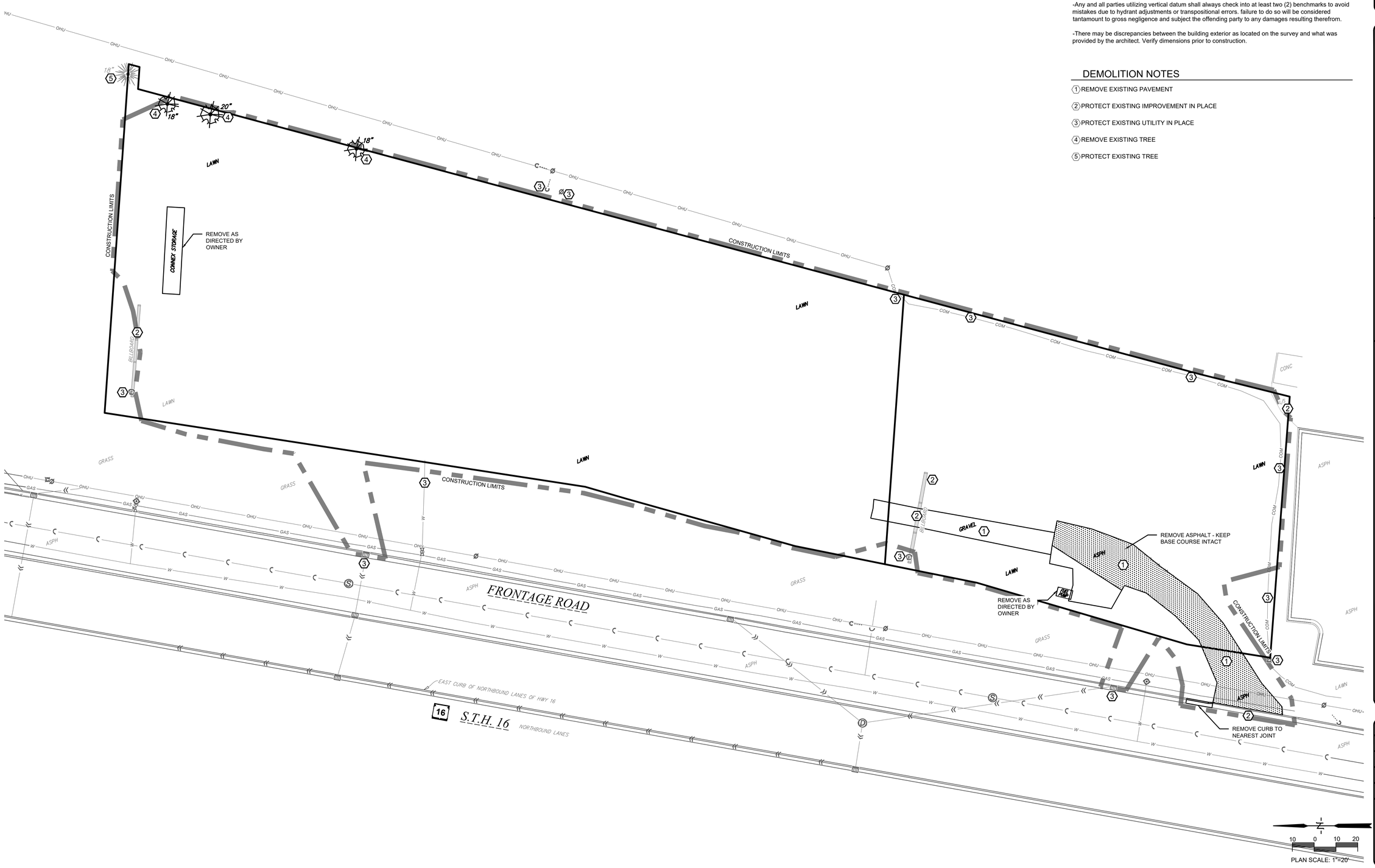
(1) REMOVE EXISTING PAVEMENT

(2) PROTECT EXISTING IMPROVEMENT IN PLACE

(3) PROTECT EXISTING UTILITY IN PLACE

(4) REMOVE EXISTING TREE

(5) PROTECT EXISTING TREE



10 0 10 20

PLAN SCALE: 1"=20'

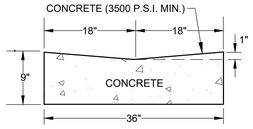
REVISIONS	BY

PARAGON ASSOCIATES
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PREPARED FOR:
DALE JACOBSON

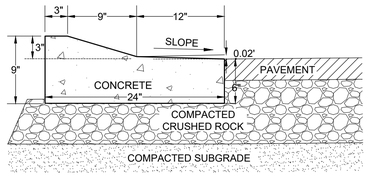
HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
DEMOLITION PLAN

DRAWN	C.G.
PROJECT No	25-089
DATE	03/13/2026
SCALE	1"=20'
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	C050



A C100 **TYPICAL 36" VALLEY GUTTER**

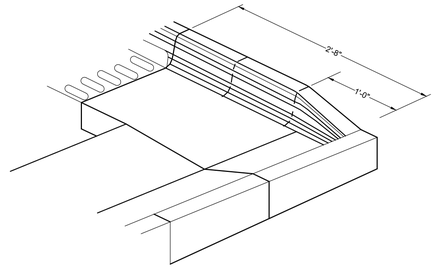
NO SCALE



NOTE:
ROCK UNDER CURB TO BE SAME DEPTH TO SUBGRADE AS ADJACENT PAVEMENT. HOWEVER, NOT LESS THAN 6".

B C100 **TYPICAL 24" MOUNTABLE CURB & GUTTER - REVERSE SLOPE**

NO SCALE



C C100 **END SECTION CORNER MOUNTABLE CURB**

NO SCALE

SITE NOTES

-The location of existing utilities, both underground and overhead are approximate only and have not been independently verified by the owner or its representatives. The contractor shall be responsible for determining the exact location of all existing utilities, whether shown on these plans or not, before commencing work, and shall be fully responsible for any and all damages which might be caused by the contractor's failure to exactly locate and preserve any and all utilities. CALL DIGGERS HOTLINE (800) 242-8511

-The underground locations of the Public Utilities were marked by representatives of those companies. The locations of the privately owned underground utilities were not marked.

-There may be more underground utility installations within the project area that are not shown.

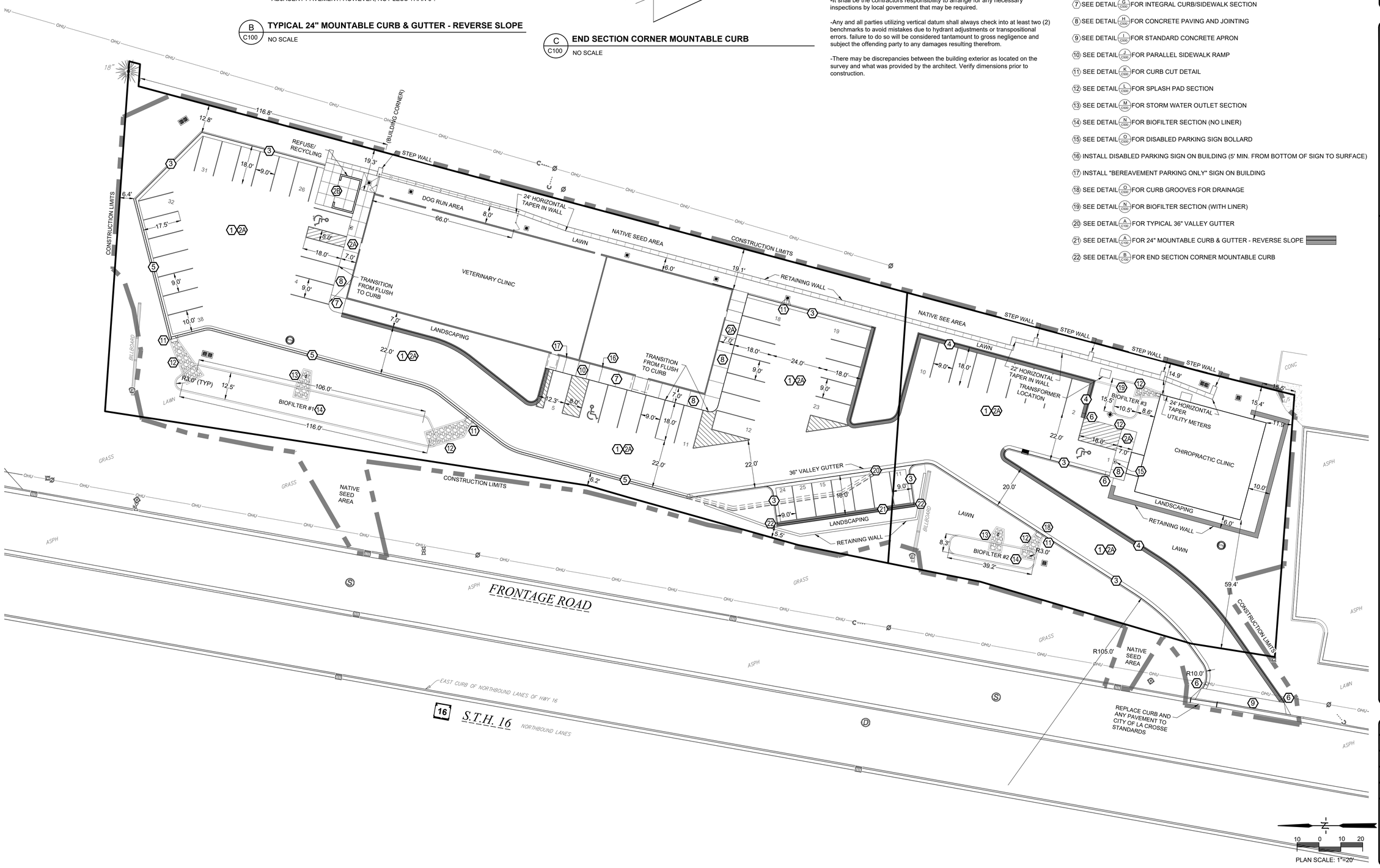
-It shall be the contractors responsibility to arrange for any necessary inspections by local government that may be required.

-Any and all parties utilizing vertical datum shall always check into at least two (2) benchmarks to avoid mistakes due to hydrant adjustments or transpositional errors. failure to do so will be considered tantamount to gross negligence and subject the offending party to any damages resulting therefrom.

-There may be discrepancies between the building exterior as located on the survey and what was provided by the architect. Verify dimensions prior to construction.

SITE NOTES

1. SEE DETAIL A C100 FOR ASPHALT PAVEMENT
2A. SEE DETAIL B C100 FOR CONCRETE PAVEMENT - TYPE 1
2B. SEE DETAIL B C100 FOR CONCRETE PAVEMENT - TYPE 2
3. SEE DETAIL C C100 FOR TYPICAL 24" CURB AND GUTTER SECTION
4. SEE DETAIL D C100 FOR 24" CURB AND GUTTER SECTION - REVERSE SLOPE
5. SEE DETAIL E C100 FOR TYPICAL 24" MOUNTABLE CURB & GUTTER
6. SEE DETAIL F C100 FOR END SECTION CURB AND GUTTER
7. SEE DETAIL G C100 FOR INTEGRAL CURB/SIDEWALK SECTION
8. SEE DETAIL H C100 FOR CONCRETE PAVING AND JOINTING
9. SEE DETAIL I C100 FOR STANDARD CONCRETE APRON
10. SEE DETAIL J C100 FOR PARALLEL SIDEWALK RAMP
11. SEE DETAIL K C100 FOR CURB CUT DETAIL
12. SEE DETAIL L C100 FOR SPLASH PAD SECTION
13. SEE DETAIL M C100 FOR STORM WATER OUTLET SECTION
14. SEE DETAIL N C100 FOR BIOFILTER SECTION (NO LINER)
15. SEE DETAIL O C100 FOR DISABLED PARKING SIGN BOLLARD
16. INSTALL DISABLED PARKING SIGN ON BUILDING (5' MIN. FROM BOTTOM OF SIGN TO SURFACE)
17. INSTALL "BEREAVEMENT PARKING ONLY" SIGN ON BUILDING
18. SEE DETAIL O C100 FOR CURB GROOVES FOR DRAINAGE
19. SEE DETAIL N C100 FOR BIOFILTER SECTION (WITH LINER)
20. SEE DETAIL A C100 FOR TYPICAL 36" VALLEY GUTTER
21. SEE DETAIL A C100 FOR 24" MOUNTABLE CURB & GUTTER - REVERSE SLOPE
22. SEE DETAIL B C100 FOR END SECTION CORNER MOUNTABLE CURB



N

10 0 10 20

PLAN SCALE: 1"=20'

REVISIONS	DATE

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PREPARED FOR:
DALE JACOBSON

HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
SITE PLAN

DRAWN	C.G.
PROJECT No	25-089
DATE	03/13/2026
SCALE	1"=20'
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	C100

GRADING NOTES

-CONTOURS SHOWN ARE FOR FINISHED SURFACES, ANY ADJUSTMENT TO SUBGRADE IS THE CONTRACTOR'S RESPONSIBILITY.

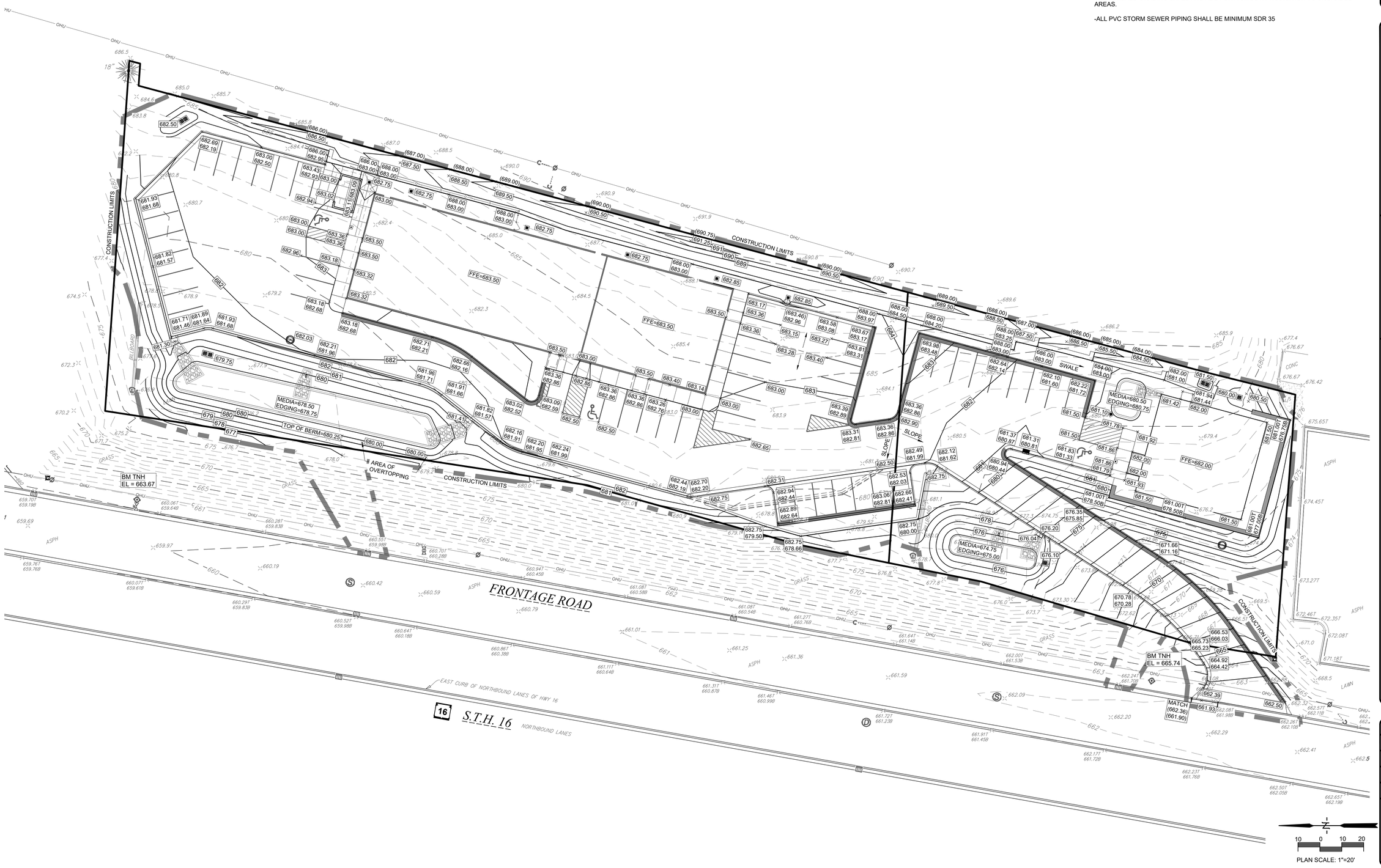
-ALL DISTURBED AREAS THAT ARE UNPAVED ARE TO BE LANDSCAPED OR HAVE LAWN ESTABLISHED AS INDICATED ON THE EROSION CONTROL AND LANDSCAPE PLANS.

-ALL LANDSCAPED OR LAWN AREAS SHALL HAVE A MINIMUM OF 6" OF TOPSOIL.

-SPOT ELEVATIONS SHALL TAKE PRECEDENCE OVER CONTOURS AND SLOPES SHOWN. HOWEVER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF SPOT ELEVATIONS DO NOT APPEAR TO AGREE WITH THE CONTOURS AND SLOPES LABELED. SPOT ELEVATIONS AND SPECIFIC PROFILE INFORMATION SHALL BE USED FOR ESTABLISHING THE ELEVATION OF CURBS, DRIVEWAYS, AND OTHER UTILITIES.

-ALL FINISHED GRADING SHALL PROVIDE FOR A SMOOTH TRANSITION TO UNGRADED AREAS.

-ALL PVC STORM SEWER PIPING SHALL BE MINIMUM SDR 35



PLAN SCALE: 1"=20'

REVISIONS	DATE

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PREPARED FOR:
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HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
GRADING PLAN

DRAWN	C.G.
PROJECT No	25-089
DATE	03/13/2026
SCALE	1"=20'
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	C200

STORM WATER CONSTRUCTION POLLUTION PREVENTION NOTES

SITE CLEARING SHALL APPLY TO ALL AREAS INSIDE LIMITS AS SHOWN ON THE PLANS. REMOVE ALL TREES COMPLETELY AS DIRECTED BY THE OWNER. ANY STRIPPED TOPSOIL SHALL BE STOCKPILED INSIDE THE LIMITS OR PLACED IMMEDIATELY ON SLOPES BEING RESTORED.

SEDIMENT CONTROL STRUCTURES BELOW SEEDED AREAS MUST REMAIN IN PLACE UNTIL THE ENTIRE AREA HAS ESTABLISHED A MATURE COVERING OF HEALTHY VEGETATION.

ALL DISTURBED AREAS SCHEDULED FOR PERMANENT COVER SHALL HAVE TOPSOIL APPLIED, AND BE SEEDED AND MULCHED AS SPECIFIED WITHIN 7 DAYS OF FINAL DISTURBANCE.

MAINTENANCE OF ALL INSTALLED EROSION AND SEDIMENT CONTROL DEVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REMOVED WHEN NO LONGER NECESSARY.

MINIMUM MAINTENANCE SHALL CONSIST OF, BUT NOT LIMITED TO:

- INSPECTING ALL EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH RAINFALL.
- FINISHED AREAS THAT HAVE BEEN DAMAGED OR ERODED SHALL BE RESTORED WITHIN THREE DAYS OF THE DAMAGE.
- UNFINISHED AREAS THAT HAVE BEEN DAMAGED OR ERODED SHALL HAVE THE PREVIOUS MEASURE REAPPLIED WITHIN SEVEN DAYS.
- VEHICLE TRACKING CONTROL APRON SHALL BE REMOVED AND REPLACED WHEN VOIDS BECOME FILLED WITH SEDIMENT OR IF SURFACE OPENINGS BECOME PLUGGED SO THAT THE APRON DOES NOT FUNCTION.
- SILT FENCES SHALL BE MAINTAINED IN A FUNCTIONING MANNER. FENCES SHALL NOT BE ALLOWED TO SAG, FALL DOWN, OR BECOME FILLED WITH SILT ON THE BACK SIDE. IF SILT BUILDS UP BEHIND A SILT FENCE, IT SHALL BE REMOVED IMMEDIATELY. UNDER NO CIRCUMSTANCES SHALL SILT DEPOSITS BE ALLOWED TO REACH MORE THAN $\frac{1}{3}$ THE HEIGHT OF THE FENCE.

SILT FENCE SHALL BE PLACED DOWN SLOPE OF ALL SOIL STOCK PILES DURING CONSTRUCTION IF LEFT MORE THAN SEVEN DAYS. STOCK PILES SHALL BE SEEDED AND MULCHED IF LEFT FOR MORE THAN 14 DAYS.

ADDITIONAL EROSION CONTROL FACILITIES MAY BE REQUIRED DUE TO UNFORESEEN SITE CIRCUMSTANCES OR SITE OPERATIONS.

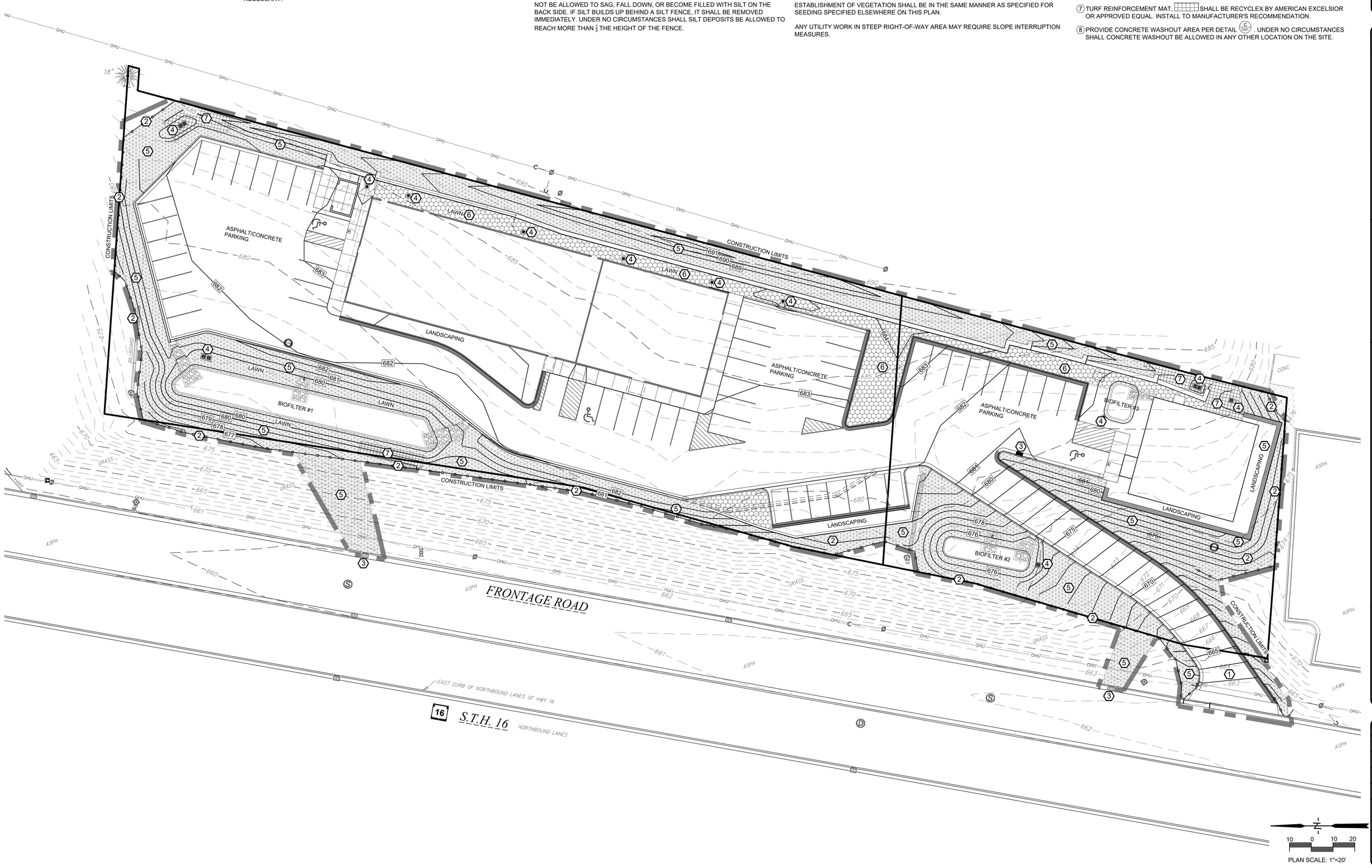
SEDIMENT CONTROL STRUCTURES BELOW LAWN AREAS MAY BE REMOVED ONCE LAWN AND FINAL LANDSCAPING IS IN PLACE. SEDIMENT CONTROL STRUCTURES BELOW SEEDED AREAS MUST REMAIN IN PLACE UNTIL THE ENTIRE AREA HAS ESTABLISHED A MATURE COVERING OF HEALTHY VEGETATION. SEDIMENT CONTROL STRUCTURES IN PAVED AREAS SHALL REMAIN IN PLACE UNTIL PAVING IS COMPLETE.

SEDIMENT DEPOSITED IN ROADS OR RIGHT OF WAY DITCHES ADJACENT TO THIS SITE AS A RESULT OF THIS WORK SHALL BE REMOVED. VEGETATION SHALL BE ESTABLISHED WHEN SEDIMENT REMOVAL DESTROYS THE EXISTING VEGETATION. THE ESTABLISHMENT OF VEGETATION SHALL BE IN THE SAME MANNER AS SPECIFIED FOR SEEDING SPECIFIED ELSEWHERE ON THIS PLAN.

ANY UTILITY WORK IN STEEP RIGHT-OF-WAY AREA MAY REQUIRE SLOPE INTERRUPTION MEASURES.

NOTES

1. PROVIDE VEHICLE TRACKING CONTROL APRON AT LOCATION WHERE ENTERING AND EXITING THE SITE. SEE DETAIL (A C001)
2. SEE DETAIL (B C001) FOR SILT FENCE INSTALLATION
3. SEE DETAIL (D C001) FOR INLET PROTECTION TYPE D
4. SEE DETAIL (E C001) FOR INLET PROTECTION TYPE B
5. EROSION CONTROL MATTING, SHALL BE CURLEX BY AMERICAN EXCELSIOR OR APPROVED EQUAL. INSTALL TO MANUFACTURER'S RECOMMENDATION.
6. ALL DISTURBED LAWN AREAS NOT COVERED BY MATTING SHALL BE SODDED.
7. TURF REINFORCEMENT MAT, SHALL BE RECYCLEX BY AMERICAN EXCELSIOR OR APPROVED EQUAL. INSTALL TO MANUFACTURER'S RECOMMENDATION.
8. PROVIDE CONCRETE WASHOUT AREA PER DETAIL (C C001) . UNDER NO CIRCUMSTANCES SHALL CONCRETE WASHOUT BE ALLOWED IN ANY OTHER LOCATION ON THE SITE.



PLAN SCALE: 1"=20'

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PREPARED FOR:
DALE JACOBSON

HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
EROSION CONTROL PLAN

DRAWN	C.G.
PROJECT No	25-089
DATE	03/13/2026
SCALE	1"=20'
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	C300

UTILITY NOTES

ALL WATER & SEWER (STORM & SANITARY) CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF "STANDARD SPECIFICATIONS FOR SEWER & WATER IN THE STATE OF WISCONSIN," ALONG WITH THE CITY OF LA CROSSE STANDARD SPECIFICATIONS, AS APPROPRIATE.

ALL WATER & SANITARY LATERALS SHALL HAVE A MINIMUM DEPTH 6' BELOW FINISHED FLOOR ELEVATIONS. THE CONTRACTOR IS TO COORDINATE ACTIVITIES & CONFIRM LOCATION & ELEVATION OF SERVICES WITH THE ENGINEER.

USE C.L.D.I.P. FOR ALL WATER MAIN.

ALL WATER MAINS SHALL HAVE A MINIMUM OF 7.5' OF COVER.

SUITABLE ON-SITE GRANULAR MATERIAL SHALL BE USED FOR TRENCH BACKFILL TO PROPOSED ELEVATIONS. BACKFILL SHALL BE COMPACTED AS SPECIFIED.

ALL EXISTING INVERTS & LOCATIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION. ALL DISCREPANCIES FROM INFORMATION SHOWN ON THE PLANS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.

CONTRACTOR SHALL IDENTIFY & MARK THE EXACT LOCATIONS OF ALL UNDERGROUND CONNECTIONS TO WATER AND SEWER MAINS, BENDS, CURB BOXES, CLEAN OUTS, ETC. ON THE AS-BUILT PLANS. COPIES OF THESE DOCUMENTS SHALL BE DELIVERED TO THE ENGINEER FOR RECORD.

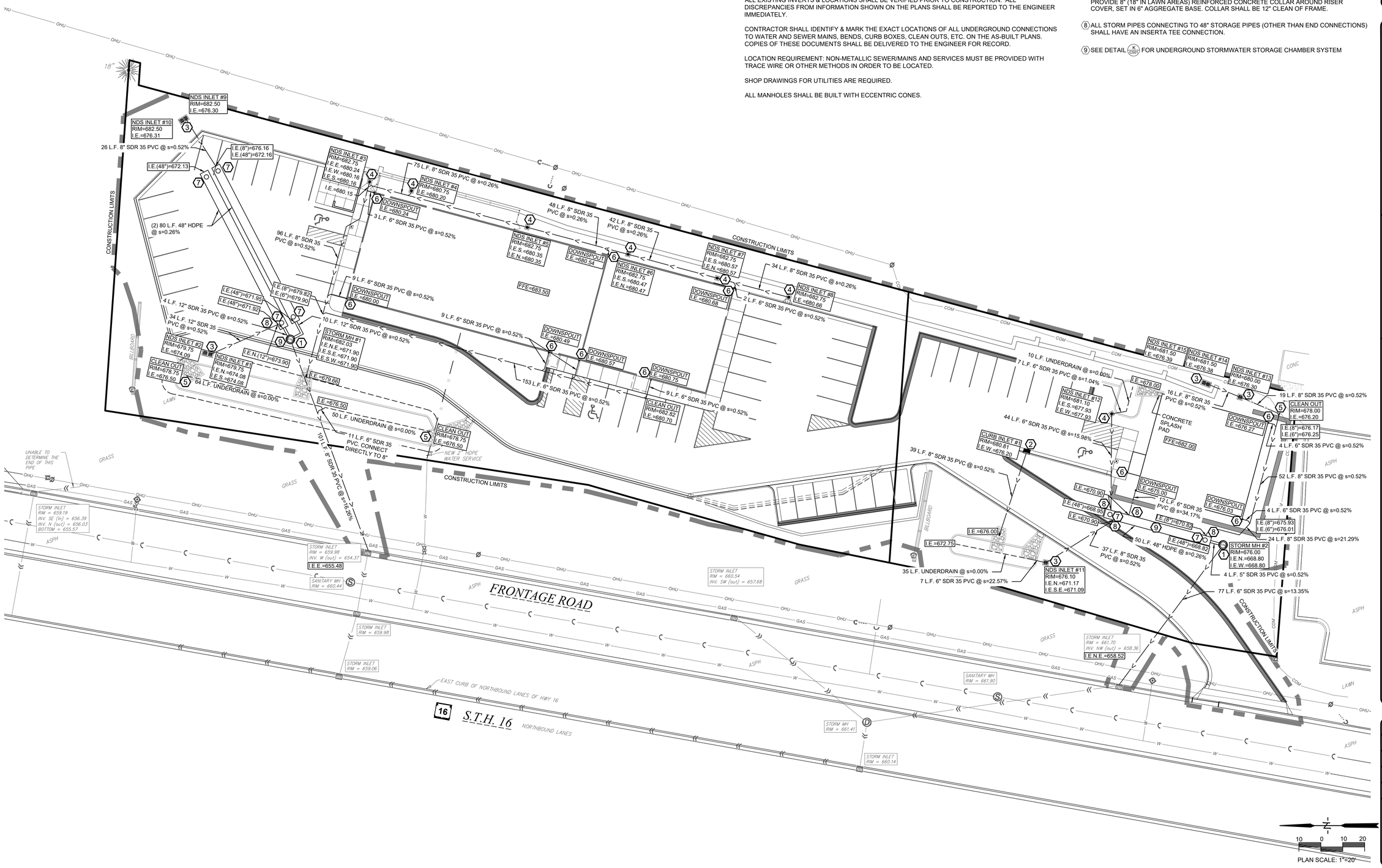
LOCATION REQUIREMENT: NON-METALLIC SEWER/MAINS AND SERVICES MUST BE PROVIDED WITH TRACE WIRE OR OTHER METHODS IN ORDER TO BE LOCATED.

SHOP DRAWINGS FOR UTILITIES ARE REQUIRED.

ALL MANHOLES SHALL BE BUILT WITH ECCENTRIC CONES.

NOTES

1. SEE DETAIL (F, C507) FOR MANHOLE FOR STORM SEWER
2. SEE DETAIL (G, C507) FOR STORM SEWER INLET 3' X 2'
3. SEE DETAIL (H, C507) FOR 18" NDS INLET
4. SEE DETAIL (H, C507) FOR 12" NDS INLET
5. SEE DETAIL (C, C507) FOR CLEAN OUT
6. SEE DETAIL (C, C507) FOR DOWNSPOUT
7. 24" INSPECTION PORT: NYLOPLAST RISER WITH 24" SOLID, TRAFFIC RATED COVER. PROVIDE 8" (18" IN LAWN AREAS) REINFORCED CONCRETE COLLAR AROUND RISER COVER, SET IN 6" AGGREGATE BASE. COLLAR SHALL BE 12" CLEAN OF FRAME.
8. ALL STORM PIPES CONNECTING TO 48" STORAGE PIPES (OTHER THAN END CONNECTIONS) SHALL HAVE AN INSERTA TEE CONNECTION.
9. SEE DETAIL (K, C507) FOR UNDERGROUND STORMWATER STORAGE CHAMBER SYSTEM



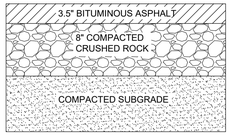
REVISIONS	DATE

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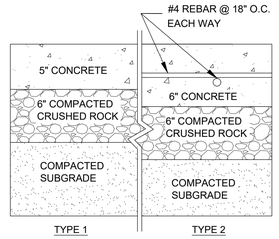
HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
UTILITY PLAN

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C.G.
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1"=20'
CAD FILE
25-089 La Crosse Vet 10.dwg
SHEET
C400

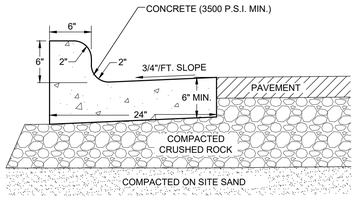


PLACE PAVEMENT USING ONE 1 1/2" SURFACE LIFT OVER ONE 2" BINDER LIFT.

A C100 LIGHT DUTY PAVEMENT SECTION DETAIL
NO SCALE

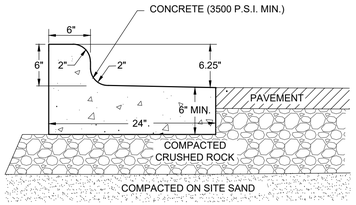


B C100 CONCRETE PAVEMENT SECTION DETAIL
NO SCALE



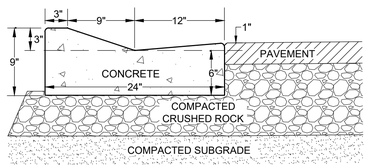
NOTE:
1. CONTROL JOINTS SHALL CONFORM WITH WISDOT 601.3.6
2. THE BOTTOM OF THE CURB AND GUTTER MAY BE CONSTRUCTED FLAT OR PARALLEL TO THE SLOPE OF THE BASE COURSE PROVIDED A MINIMUM 6" GUTTER THICKNESS IS MAINTAINED

C C100 TYPICAL 24" CURB AND GUTTER SECTION
NO SCALE



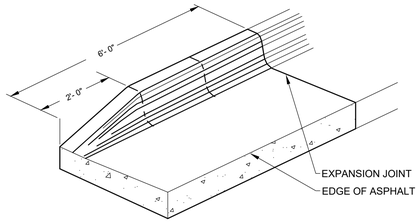
NOTE:
1. CONTROL JOINTS SHALL CONFORM WITH WISDOT 601.3.6
2. THE BOTTOM OF THE CURB AND GUTTER MAY BE CONSTRUCTED FLAT OR PARALLEL TO THE SLOPE OF THE BASE COURSE PROVIDED A MINIMUM 6" GUTTER THICKNESS IS MAINTAINED

D C100 24" CURB AND GUTTER SECTION - REVERSE SLOPE
NO SCALE

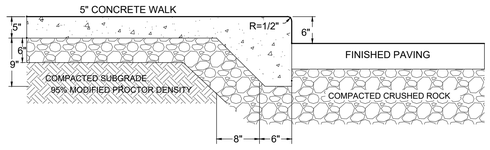


NOTE:
ROCK UNDER CURB TO BE SAME DEPTH TO SUBGRADE AS ADJACENT PAVEMENT. HOWEVER, NOT LESS THAN 6".

E C100 TYPICAL 24" MOUNTABLE CURB & GUTTER
NO SCALE

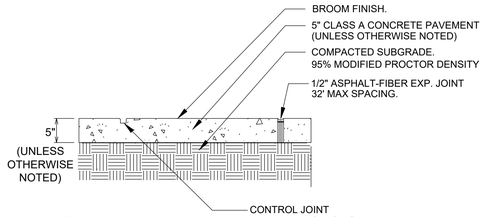


F C100 END SECTION CURB & GUTTER
NO SCALE



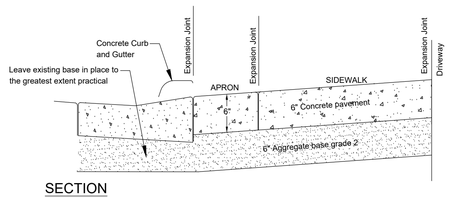
NOTE:
ROCK UNDER CURB TO BE SAME DEPTH TO SUBGRADE AS ADJACENT PAVEMENT. HOWEVER, NOT LESS THAN 6".

G C100 INTEGRAL CURB/SIDEWALK SECTION
NO SCALE



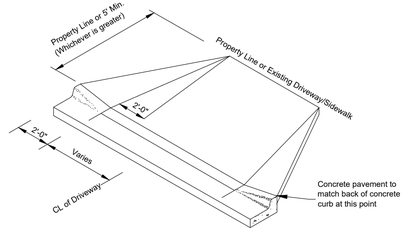
NOTE:
SIDEWALK IN DRIVEWAY SECTIONS SHALL BE 6" THICK

H C100 CONCRETE PAVING AND JOINTING
NO SCALE



SECTION

NOTE: SIDEWALK IN DRIVEWAY SECTIONS SHALL BE 6" THICK



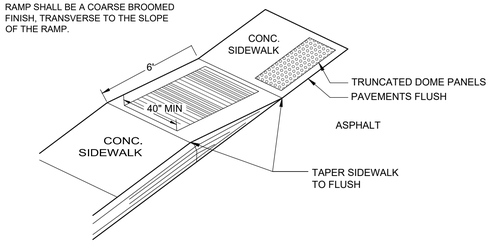
ISOMETRIC

*FOR REFERENCE ONLY. SEE CITY OF LA CROSSE STANDARD DETAIL DRAWINGS ON SHEET C506 FOR MORE INFORMATION

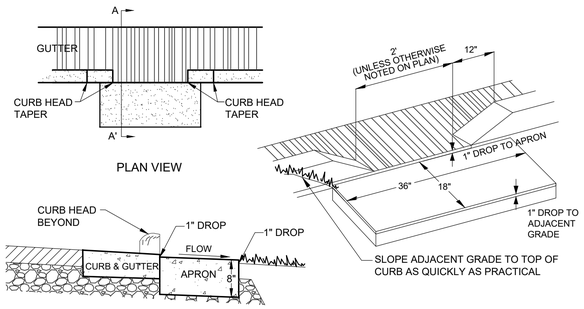
NOTE: Control joints in concrete curb not to exceed 10' spacing through driveway section.

I C100 STANDARD CONCRETE APRON
NO SCALE

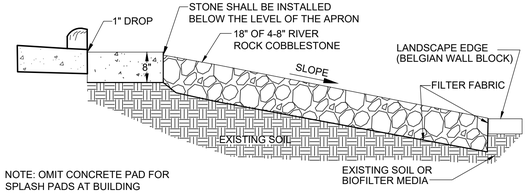
NOTES:
* 2'x4' TRUCATED DOME PANELS SHALL BE NEENAH
* THE SURFACE TEXTURE OF THE RAMP SHALL BE A COARSE BROOMED FINISH, TRANSVERSE TO THE SLOPE OF THE RAMP.



J C100 PARALLEL SIDEWALK RAMP DETAIL
NO SCALE

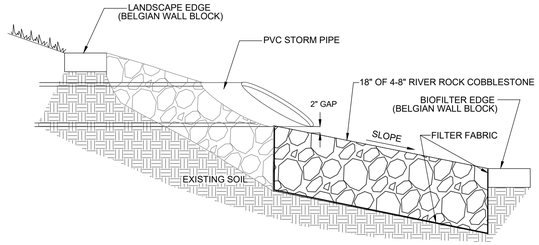


K C100 CURB CUT DETAIL
NO SCALE

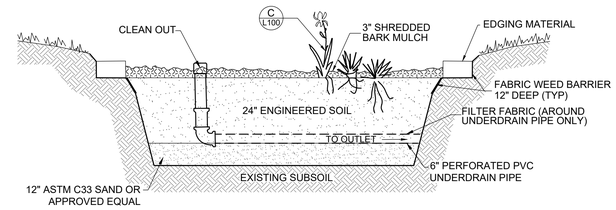


NOTE: OMIT CONCRETE PAD FOR SPLASH PADS AT BUILDING

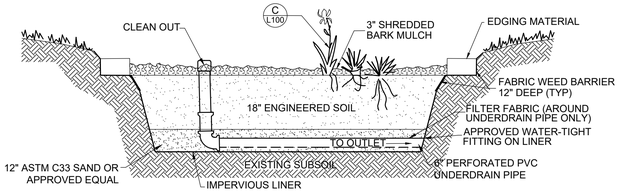
L C100 SPLASH PAD SECTION
NO SCALE



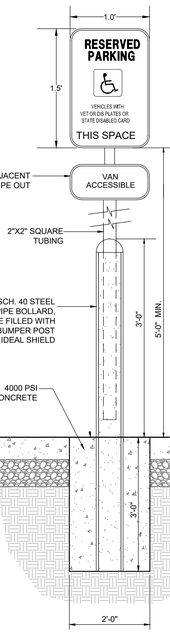
M C100 STORM WATER OUTLET SECTION
NO SCALE



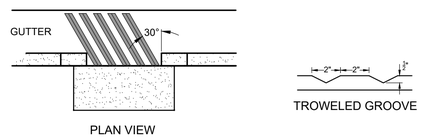
N C100 BIOFILTER DETAIL (NO LINER)
NO SCALE

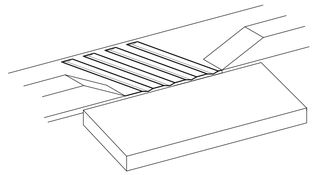


N C100 BIOFILTER DETAIL (WITH LINER)
NO SCALE



O C100 DISABLED PARKING SIGN BOLLARD DETAIL
NO SCALE





P C100 CURB GROOVES FOR DRAINAGE DETAIL
NO SCALE

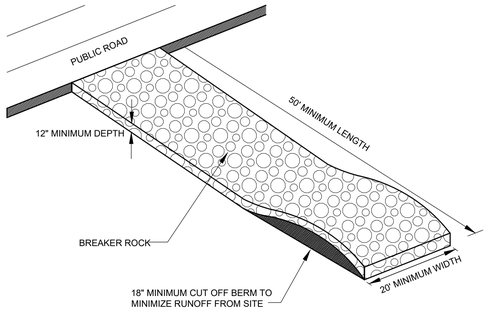
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HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
DETAILS

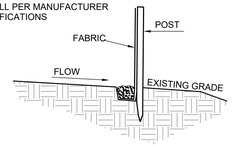
DRAWN	C.G.
PROJECT No	25-089
DATE	03/13/2026
SCALE	VARIES
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	C500



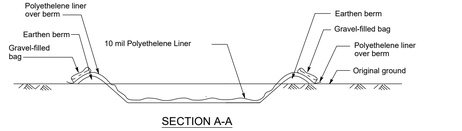
NOTES:
1. PLACE FILTER FABRIC (PROPEX 2002 OR EQUAL) UNDER BREAKER ROCK TO PREVENT MUD MIGRATION THROUGH ROCK.
2. ENTRANCE MUST BE MAINTAINED REGULARLY TO PREVENT SEDIMENTATION ON PUBLIC ROADWAYS. FUGITIVE ROCK WILL BE REMOVED FROM ADJACENT ROADWAYS DAILY OR MORE FREQUENTLY AS NECESSARY.

A C300 **VEHICLE TRACKING CONTROL**
NO SCALE

NOTE:
-REFER TO:
WISCONSIN DEPARTMENT OF NATURAL RESOURCES CONSTRUCTION SITE EROSION & SEDIMENT CONTROL STANDARD SILT FENCE (1056)
-INSTALL PER MANUFACTURER SPECIFICATIONS

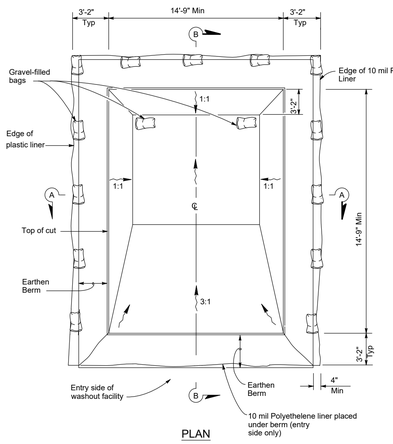


B C300 **TYPICAL SILT FENCE INSTALLATION**
NO SCALE

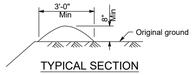


SECTION B-B

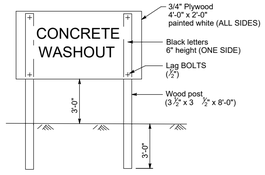
SECTION A-A



PLAN

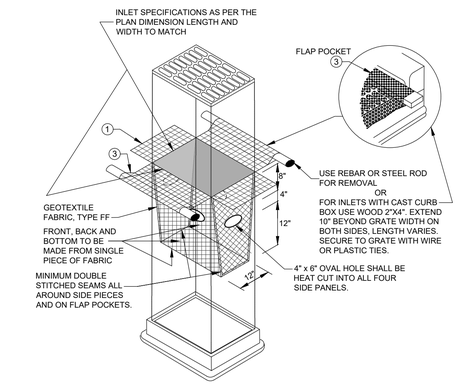


TYPICAL SECTION
EARTHEN BERM



CONCRETE WASHOUT
SIGN DETAIL

C C300 **TEMPORARY CONCRETE WASHOUT FACILITY**
NO SCALE



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE 2)

- DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.
- TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
- THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING THE PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

GENERAL NOTES

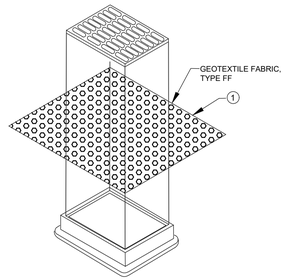
INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE WIS. D.O.T.'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

1. FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
2. FOR INLET PROTECTION, TYPE C (WITH CURB BOX). AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
3. FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

D C300 **INLET PROTECTION, TYPE D**
NO SCALE



GENERAL NOTES

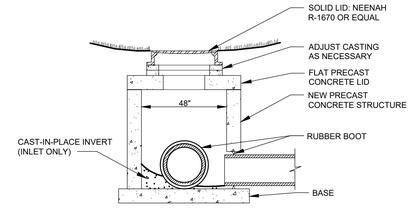
INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE WIS. D.O.T.'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

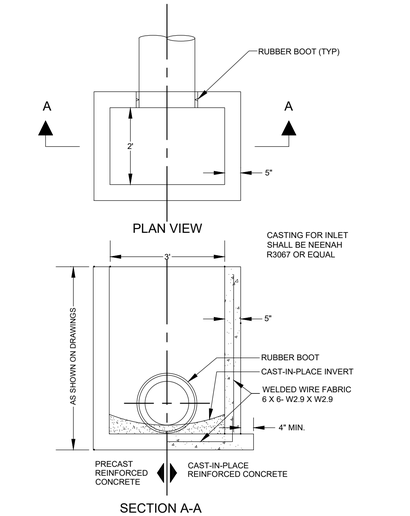
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

1. FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

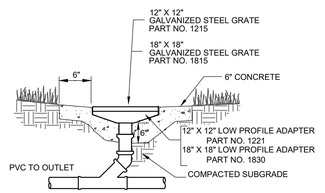
E C300 **INLET PROTECTION, TYPE B (WITHOUT CURB BOX)**
NO SCALE



F C400 **MANHOLE FOR STORM SEWER**
NO SCALE

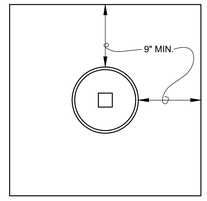


G C400 **STORM SEWER INLET 3' X 2'**
NO SCALE

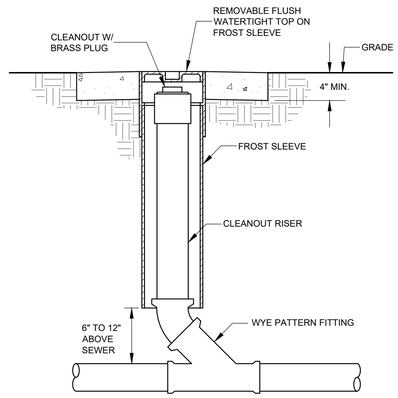


-ALL PART NUMBERS ARE NDS PRODUCT NUMBERS
NDS
PO BOX 339, 851 N. HARVARD AVE
LINDSAY, CA. 93247
(800) 726-1994

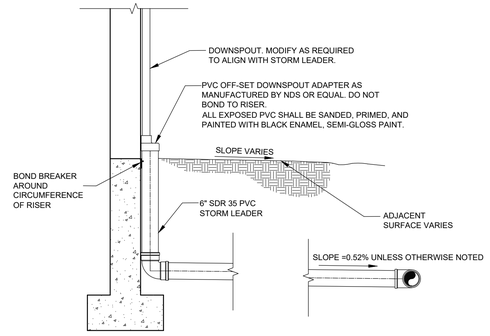
H C400 **NDS INLET**
NO SCALE



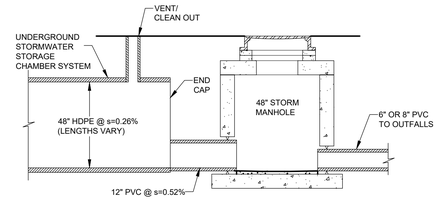
CONCRETE PAD REQUIRED IN AREAS SUBJECT TO VEHICULAR TRAFFIC.



I C400 **EXTERIOR CLEAN OUT DETAIL**
NO SCALE



J C400 **DOWNSPOUT DETAIL**
No Scale



K C400 **UNDERGROUND STORMWATER STORAGE CHAMBER SYSTEM**
NO SCALE

REVISIONS	BY

PARAGON ASSOCIATES
Environmental Design & Consulting
CIVIL ENGINEERING . LANDSCAPE ARCHITECTURE . SURVEYING
632 COPELAND AVENUE . LA CROSSE, WI 54603
Tel.608.781.3110 Fax.608.781.3197 Paragon-Assoc.biz

PREPARED FOR:
DALE JACOBSON

HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
DETAILS

DRAWN	C.G.
PROJECT No	25-089
DATE	03/13/2026
SCALE	VARIES
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	C501

LANDSCAPING NOTES:

1. VERIFY UTILITY LOCATION BEFORE BEGINNING ANY WORK.

2. PROVIDE BELGIAN WALL BLOCKS AROUND ALL BIOFILTERS AND SPLASH PADS PER PLANS. SEE DETAILS ON SHEET C500.

3. SEE LEGEND FOR SEED/SOD LOCATIONS. NATIVE SEED MIX SHALL BE "EROSION CONTROL MIX FOR MEDIUM SOILS" BY PRAIRIE NURSERY OR APPROVED EQUAL. SEED AT RECOMMENDED RATE.

4. BIOFILTER PLANT SPACING TO BE 30" O.C. - RANDOMLY PLACE DIFFERENT SPECIES IN BIOFILTERS #1 AND #2.

5. LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK.

6. THE LANDSCAPE ARCHITECT'S ESTIMATED QUANTITIES ARE SHOWN IN THE MATERIAL LIST-SCHEDULE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON THE PLAN AND SHALL RELY ON THE SCHEDULED QUANTITIES AT THEIR OWN RISK. THE CONTRACTOR SHALL INCLUDE IN THE BID ALL PLANTINGS SHOWN ON THE DRAWINGS, WHETHER INCLUDED IN THE SCHEDULE OR NOT.

LEGEND

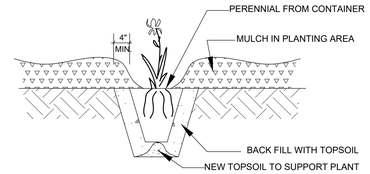
- NATIVE SEED MIX
- LAWN SEED MIX
- SOD

PLANT MATERIAL LIST-SCHEDULE (BIOFILTERS #1 AND #2)

BOTANICAL NAME COMMON NAME	SIZE	QUANTITY
Andropogon gerardii Big Bluestem	2" x 5" Plug	25
Aster novae-angliae New England Aster	2" x 5" Plug	25
Echinacea purpurea Purple Coneflower	2" x 5" Plug	25
Monarda fistulosa Bergamot	2" x 5" Plug	25
Panicum Virgatum Switchgrass	2" x 5" Plug	25
Ratibida pinnata Yellow Coneflower	2" x 5" Plug	25
Rudbeckia fulgida Black-eyed Susan	2" x 5" Plug	26
Schizachyrium scoparium Little Bluestem	2" x 5" Plug	25
Sorghastrum nutans Indian grass	2" x 5" Plug	25
Tradescantia ohiensis Ohio Spiderwort	2" x 5" Plug	25

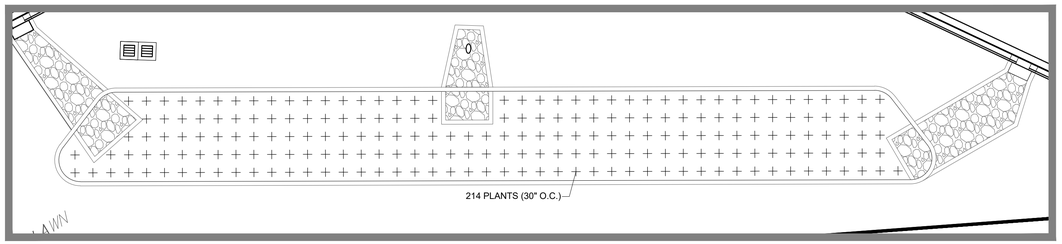
PLANT MATERIAL LIST-SCHEDULE (BIOFILTER #3)

KEY	BOTANICAL NAME COMMON NAME	SIZE	QUANTITY
Mf	Monarda fistulosa Wild Bergamot	1 gal	6
Rf	Rudbeckia fulgida var. sullivantii 'Goldsturm' Goldsturm Black-eyed Susan	1 gal	7
Sh	Sporobolus heterolepis Prairie Dropseed	1 gal	8

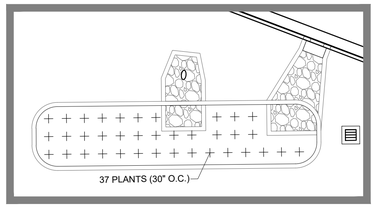


A L100 **POTTED PLANTS PLANTING DETAIL**

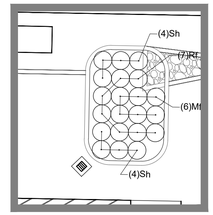
NO SCALE



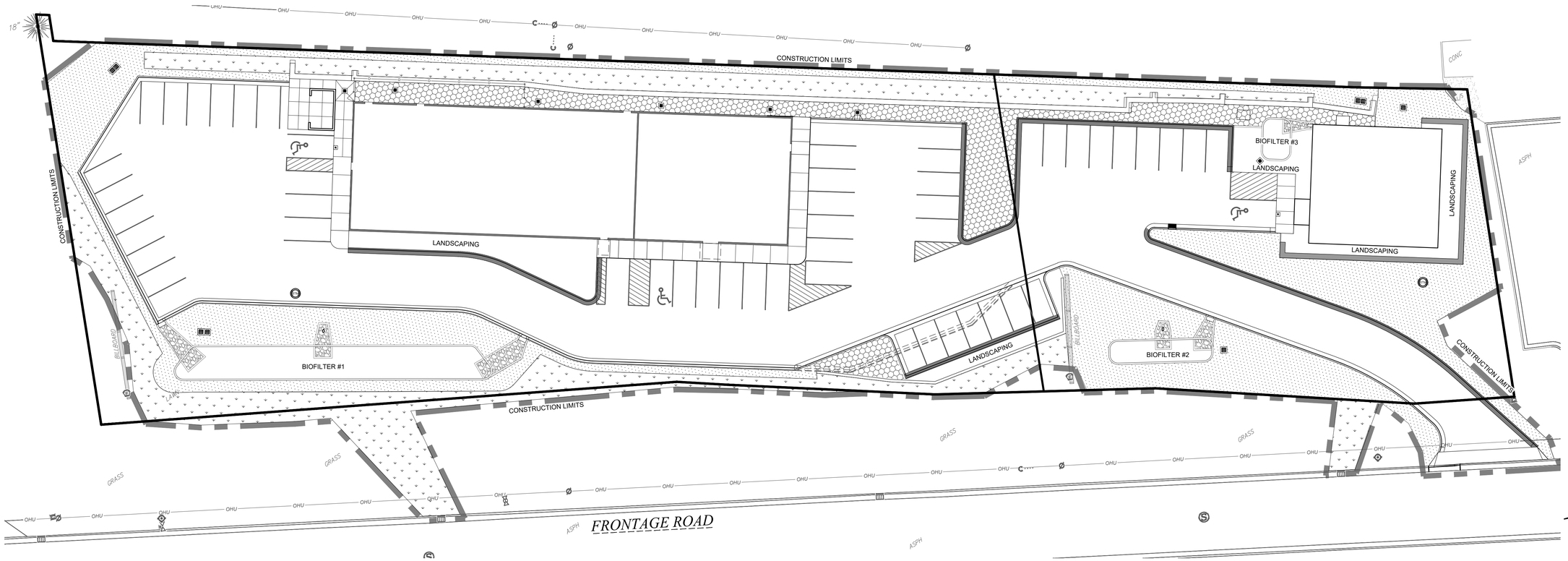
BIOFILTER #1 SCALE: 1"=10'



BIOFILTER #2 SCALE: 1"=10'



BIOFILTER #3 SCALE: 1"=10'



10 0 10 20

PLAN SCALE: 1"=20'

PARAGON ASSOCIATES
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632 COPELAND AVENUE . LA CROSSE, WI 54603
Tel.608.781.3110 Fax.608.781.3197 Paragon-Assoc.biz

REVISIONS	DATE

PREPARED FOR:
DALE JACOBSON

HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
LANDSCAPE PLAN

DRAWN	C.G.
PROJECT No	25-089
DATE	03/13/2026
SCALE	1"=20'
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	L100




AFFLAUSE


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NAPA
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OPEN SUNDAY



Stormwater Management Permit Application

City of La Crosse Engineering Department

400 La Crosse Street ◘ Engineering Department ◘ La Crossse, WI 54601

Section 1 ◘ Property Information

Project Name: Live Well Chiropractic Clinic New Building

Property Address: 1822 STH 16 — *Street*

17-10460-110 — *Lot Number(s)* / *Parcel Number*

La Crosse — *City*

WI — *State*

54601 — *ZIP Code*

Cold Springs Addition — *Plat or CSM*

Section 2 ◘ Landowner Information

Full Name: Frank (*Last*) Angela (*First*)

M.I.

Mailing Address: 1810 Pine Ridge Dr — *Street*

Apartment/Unit #

Onalaska — *City*

WI — *State*

54650 — *ZIP Code*

Contact Phone: 507-458-6131

E-Mail: drangelafrank@gmail.com

Section 3 ◘ Applicant Information

☐ **Same as Landowner** *(Check if YES, and continue with Section 4)*

Full Name: Haines (*Last*) Robert (*First*)

M.I.

Mailing Address: Paragon Associates, 632 Copeland Ave — *Street*

Apartment/Unit #

La Crosse — *City*

WI — *State*

54603 — *ZIP Code*

Contact Phone: 608-781-3110

E-Mail: bobh@paragon-assoc.biz

Section 4 ◘ Site Information

Total Site Area	21,999	ft^2
Existing Impervious Area *(Before Project)*	2645	ft^2
New Impervious Area *(Impervious area added outside any existing impervious area)*	11,040	ft^2
Redeveloped Impervious Area *(Impervious area redeveloped inside original impervious area foot print)*	2645	ft^2
Removed Impervious Area *(From inside original impervious area footprint)*	0	ft^2
Net Impervious Area *(After Project)*	13,685	ft^2

Work to be performed by *(if known)*: ☐ **Same as Applicant** *(Check if YES)* ☐ **Same as Landowner** *(Check if YES)*

Construction Contact: Dale Jacobson - All Space Matters, Inc

Contact Phone: 414-897-3500 E-Mail: dallspacematters@gmail.com

Stormwater Management Report/Plan to be attached.
Please note application cannot be processed without report/plan*

Section 5 ¤ Fee

Permit Fee $ 0.00

FEES RECEIVED
Office Use Only
Date _____
Amt _____
By _____

Section 6 ¤ Stormwater Management Requirements

☒ TSS Reduction: ☐ New Development (80%) ☒ Redevelopment (40%)
☐ Oil & Grease Removal
☒ Runoff Rate Control/Detention
☐ Infiltration
☐ Groundwater Recharge
☐ Thermal Control
☐ Maintenance Agreement Executed

Construction Start Date 10-27-25 Estimated Project Completion Date 8-1-26

Section 7 ¤ Applicant Signature

I have reviewed and understand Chapter 105 of the La Crosse Ordinances regarding erosion control, and I shall implement the control plan for this project as approved by the city.

I further, in accordance with Chapter 105, grant the right-of-entry onto this property, as described above, to the designated personnel of the City of La Crosse for the purpose of inspecting and monitoring for compliance with the aforesaid ordinance.

Applicant Signature _____ Date of Application amended 3-12-26

**Applicant other than landowner requires a notarized statement authorizing the applicant to act as the landowner's agent—must be attached*

PARAGON ASSOCIATES
Environmental Design & Consulting

March 12, 2026

City of La Crosse Engineering Dept.
ATTN. Yuri Nasonovs
400 La Crosse St.
La Crosse, WI 54601

Regarding: Stormwater Permit for STH 16 Clinics Development Phase 2 – Live Well Chiropractic Clinic AMENDED

Dear Yuri:

We are re-submitting our amended application for a City Stormwater Permit for the above referenced construction project that has previously been reviewed by the City's Design Review Committee (see 7-11-25 City memo). The overall project is occurring on 2 separately-owned, adjacent parcels that front upon the STH 16 Frontage Road at 1822 STH 16. The 2 parcels will share a driveway onto Frontage Road but each parcel will be developed separately as phase 1 & phase 2 of the overall project. **This application is for land disturbances involved in phase 2 only.** Because a residential house and garage previously existed on this site, Phase 2 is considered to be re-development.

Phase 2 of this project will involve the construction of the Live Well Chiropractic Clinic on the southern of the 2 parcels (17-10460-110, 0.50 acres, 1822 STH 16). The new clinic will consist of a 1-story building with a parking lot, landscaped areas and stormwater treatment structures. The building has a 2000 sf footprint and Phase 2 will disturb 0.47 acres on the southern parcel and 0.04 acres of Frontage Road right-of-way.

Phase 2 construction is expected to begin yet this fall with substantial completion expected in summer of 2026. Phase 2 construction will largely occur concurrently with phase 1 construction.

Most storm water runoff for phase 2 will be treated by 2 biofilters and an underground chamber storage system. A significant amount of stormwater run-on enters the site from residential and commercial properties to the east, and most of that run-on will enter the proposed underground chamber storage system. The EC&SWM Plan describes this in more detail. The site was modeled using WinSLAMM V10.5 and HydroCAD V10.00-26 for pre and post construction conditions. The models show a total suspended solids reduction of 51.87% for site-generated runoff, and 46.88% when run-on volumes are included. Peak discharge volumes will be reduced or maintained as follows:

Storm Event	Ex. Site (cfs)	Pro. Site	Pro. Site + Run-on
2-yr	0.37	0.37	1.08
10-yr	0.95	0.69	2.12
100-yr	2.56	2.28	3.68

Be advised that although the HCAD model shows a warning that the underground storage chamber's outlet device becomes submerged, which is the intended result as the 5" outlet pipe is designed to

slowly release stored water.

The following items are being included in this submittal:

1. Stormwater Permit application
2. Full plan set (for both phases)
3. Annotated Grading & Utility Plans
4. Erosion Control & Stormwater Management Plan

Please feel free to contact our office should you need any additional information or clarification regarding this matter.

Sincerely,



Robert A. Haines
WI PE #30878

EROSION CONTROL AND STORM WATER MANAGEMENT PLAN

for
City of La Crosse

Live Well Chiropractic Clinic New Building
(Phase 2 of STH 16 Clinics project)
City of La Crosse
La Crosse County, Wisconsin

Amended March 12, 2026

Prepared for:
Dr. Angela Frank
1810 Pine Ridge Dr.
Onalaska, WI. 54650
Tel: (507) 458-6131

PARAGON ASSOCIATES
Environmental Design & Consulting
CIVIL ENGINEERING . LANDSCAPE ARCHITECTURE . SURVEYING
632 COPELAND AVE . LA CROSSE, WI 54603
Tel.608.781.3110 Fax.608.781.3197 Paragon-Assoc.biz

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STORM WATER MANAGEMENT PLAN 6

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APPENDIX B Soils Information
APPENDIX C Model Output
APPENDIX D Operation and Maintenance Plan
APPENDIX E Long Term Maintenance Agreement
APPENDIX F USLE Results

EROSION CONTROL PLAN
Live Well Chiropractic Clinic New Building – La Crosse

This report references Construction Plans titled HIGHWAY 16 CLINICS, September 26, 2025 by Paragon Associates, Inc. The following outlines the required information for Erosion Control Plans as outlined in NR 216.46(4).

WISCONSIN DEPARTMENT OF NATURAL RESOURCES REQUIREMENTS
(IN ACCORDANCE WITH WISCONSIN ADMINISTRATIVE CODE: NR 216.46(4))

Construction Site Description: Aerial photos which have the site outlined have been included in **Appendix A**. The site currently consists of two adjacent parcels of land that are primarily fallow farm fields adjacent to the STH 16 Frontage Road. The north parcel has no assigned address but the south parcel is at 1822 STH 16 and previously contained a residential house and garage with a driveway onto the STH 16 Frontage Road. The 2 parcels currently share a single driveway via an easement across the south parcel, and each parcel also contains a billboard via easements A map of nearby water resources have also been included in **Appendix A**.

The project will occur on the 2 separately owned parcels in 2 phases, with each phase being primarily the construction of a new commercial building on 1 of the parcels. The 2 phases will occur nearly simultaneously, with construction start dates within 1-2 months of each other, and both will utilize the same general contractor and same construction manager. The 2 phases are interconnected by both the shared driveway and also the shared use of stormwater management structures. By mutual agreement of the owners, some stormwater from the north parcel will flow onto and be treated by biofilters and underground storage chambers on the south parcel. Because of this interconnection, the site development plan sheets included in this Erosion Control & Stormwater Management Plan show the development of both parcels. **However, this submittal is only intended the cover the land disturbances associated with phase 2 on the south parcel**. A separate submittal has previously been made for phase 1.

Phase 2 is the construction of the new Live Well Chiropractic Clinic on the south parcel at 1822 STH 16. Phase 2 will include a new parking lot, utility installations, re-grading of most of the parcel, installation of permanent BMP's, paving and landscaping. The grading, paving, parking lot construction, seeding, and landscaping will constitute a majority of the ground disturbing activities.

Description of intended sequence of activities: The anticipated sequence of major land disturbing construction activities are as follows: installation of temporary erosion control devices, removals and demolition, utility installation, grading, subbase preparation, paving, final stabilization, seeding and fertilizing, minor grading and site work, and final restoration.

Estimate of construction site area: The area inside the limits of the phase 2 construction is about 0.47 acres of the 0.50 acre south parcel, and 0.04 acres of STH 16 Frontage Road right-of-way, and is essentially the actual area of disturbance.

Soil data: A geotechnical report is included in **Appendix B**. Subsoils are primarily silts. Results from the Universal Soil Loss Equation calculation are added to this plan in **Appendix F.**

Groundwater Limitations: The highest groundwater elevation on the phase 2 site, excluding the STH 16 Frontage Road right-of-way, is expected to occur at the southwest corner, which is the lowest elevation on the site. Groundwater is expected to be at least 25 feet below ground surface. No portion of the phase 2 structure or storm water BMP's are expected to reach that depth.

Nearest receiving water: The closest surface water are wetlands adjacent to the La Crosse River.

The Erosion Control Plan (Sheet C300 of the Drawing Set) contains the following required information as applicable: existing topography and drainage patterns, roads and surface waters; boundary of construction site; drainage patterns and approximate slopes anticipated after major grading activities; areas of soil disturbance; location of major structural and non-structural controls identified in this plan; location of areas where stabilization practices will be employed; areas that will be vegetated following land disturbing construction activities; area and location of wetland acreage on the construction site, and locations where storm water is discharged to a surface water or wetland within one-quarter mile downstream of the construction site; and areas used for infiltration of post-construction storm water runoff.

Description of practices: Silt fence shall be installed prior to land disturbance. Existing vegetation shall be preserved where attainable. The proposed grading will direct runoff into the site minimizing the potential for sediment to leave the site. No existing storm sewer inlets exist on the site, but downslope inlets exist on STH 16 Frontage Road.

Description of overland flow management: Flow will be routed through wide, shallow swales. Silt fence will be installed along the perimeter of the site to control sheet flow leaving the site.

Trapping of sediment in channels: Ditch checks will be installed to slow runoff and trap excess sediment.

Staging of activities: Erosion control measures including tracking control and silt fence will be installed prior to major ground disturbance. Inlet protection and ditch checks shall be installed as the features they protect are completed. Erosion matting and temporary seeding and mulching shall be utilized to stabilize the site.

Downslope inlet protection: Downslope storm sewer inlets on STH 16 Frontage Road will receive inlet protection measures. It will be the Contractor's responsibility to monitor any runoff from the project site and to implement any needed controls to prevent clogging of downstream inlets.

Vehicle tracking: Vehicle tracking from the site shall be controlled as required by the Contractor. It shall be the Contractor's responsibility to maintain proper tracking control to and from the site.

Off-site sediment deposits: It may be required to clean up off-site sediment deposits that have been carried off during large rain events. If such sediment deposits occur and it is obvious that the sediment is from the construction site, the Contractor shall remove the deposits.

Proper disposal of building and waste material: Building and waste deposits shall be properly disposed of as stated in the project specifications and/or per local laws and ordinances.

Stabilization of drainageways: Drainageways and all exposed pervious areas shall be stabilized, seeded, mulched, and/or matted as soon as practicable to minimize soil loss due to erosion.

Installation of permanent stabilization practices: All permanent erosion and sediment control practices including seeding, fertilizing, mulching, and landscaping shall be installed as soon as practicable after final grading.

Dust control: It may be required that the Contractor implement the use of dust control if the construction site becomes dry. The Contractor shall take the necessary measures to ensure that dust is controlled during construction.

Materials: No solid materials, including building materials, may be discharged in violation of Ch. 30 or 31, Stats. or 33 USC 1344 or a U.S. Army Corps of Engineers Section 404 Permit issued under 33 USC 1344.

Non-erosive flow: Velocity dissipation devices will be placed at discharge locations and along outfalls to provide non-erosive flow from any proposed structures or facilities. Due to the nature of the site, locations of potential erosive flow are likely to be temporary in nature as a result of the sequence of construction and will be best managed under temporary erosion controls.

Inspection and Monitoring: The landowner, or the landowner's representative, shall inspect erosion and sediment control practices weekly, and within 24 hours following a rainfall of 0.5 inches or greater. Written documentation of each monitoring activity shall be maintained at the construction site and shall include the time, date and location of inspection, the phase of land disturbance at the construction site, person conducting the inspection, assessment of control practices, and a description of any erosion or sediment control measure installation or maintenance performed in response to the inspection.

Dewatering activity sediment reduction: Any dewatering necessary on the construction site must include measures to reduce the sediment in the water leaving the site. Dewatering BMPs may include filters, fiber rolls or gravel bag berms. Ground water is not expected to be encountered during construction.

Stockpile protection: Any soil stockpiles which are left more than 7 days must be protected by seeding and mulching, erosion mat, silt fencing, covering, or other methods. This does not include fill or topsoil piles that are in active use.

STORM WATER MANAGEMENT PLAN

Live Well Chiropractic Clinic New Building – La Crosse

The following outlines the Storm Water Management Plan Requirements as stated in NR 216.47-216.55

Applicability: This phase 2 site is subject to post-construction performance standards per NR 151.11 and is considered re-development due to the previously demolished residential house and garage.

Summary of Controls: All areas of re-development are subject to TSS removal, peak discharge reduction and infiltration, and these requirements are accomplished by installing 2 biofilters and an underground chamber storage system.

Performance Standards

Total Suspended Solids: This phase 2 site is considered re-development and requires a 40% reduction in TSS load by NR 151 as compared to no controls. WinSLAMM V10.5.0 was used to model the site and determine the amount of TSS carried in runoff from the site.

Baseline Model (Developed site without controls & without run-on)

Total TSS = 154.4 lbs.

TSS removal requirement is 154.4 x 0.4 = 61.8 lbs.

Modeled TSS (Developed Site, without run-on)

TSS without Controls: 154.4 lbs.

TSS with Controls: 74.3 lbs.

TSS removal with Controls: 80.1 lbs. (51.87%)

The BMP's remove 80.1 lbs. of TSS which exceeds the removal requirement of 61.8 lbs. (on a yearly basis), therefore the site is in conformance with the requirements of NR. 151. The model showed that when stormwater run-on from adjacent sites was included, TSS removal was 46.88%

Peak Discharge: This phase 2 project is classified as re-development and requires peak discharge rates to be maintained or reduced for post-construction 2-year and 10-year, 24-hour storm events as compared to those same pre-construction storm events. NOAA Atlas 14 precipitation amounts were used in HydroCAD V10.00-26 models. This requirement is accomplished by the proposed biofilters with the peak discharge rates as follows:

Storm Event	Existing Site Conditions	Proposed Site Conditions	Proposed Site + Run-on
2-year	0.37 cfs	0.37 cfs	1.08 cfs
10-year	0.95 cfs	0.69 cfs	2.12 cfs
100-year	2.56 cfs	2.28 cfs	3.68 cfs

The phase 2 project site currently receives a significant amount of stormwater run-on from adjacent commercial and residential properties to the east, which passes thru the project site to the existing Frontage Road storm sewer system. This project will accept most of that run-on into it's underground storage chambers system, but the chamber system is only designed to accept the 25-year event volume with that run-on included. Therefore the chamber system and the hydraulically connected biofilter will both overflow during events exceeding the 25-year storm, and will overflow to Frontage Road. However, the volume of run-off reaching Frontage Road will be reduced by this project's BMP's as compared to diverting the run-on flows around the BMP's. No structures or other development exists between the site's outfalls and the receiving water (La Crosse River) except for STH 16 and it's Frontage Road. Detailed modeling data is added to this plan in **Appendix C.**

Infiltration: This phase 2 project is classified as re-development with both phases disturbing a total of more than 1 acre, so infiltration performance standards are applicable. However, the soils report shows that the native soil infiltration rate of 0.03 inches/hour is less than the minimum 0.6 inches/hour specified in NR 151.124(4)(C)(1) required, so this project is exempt from infiltration requirements.

Practices During Construction: The following Management Practices shall be implemented during construction to help control total suspended solids and peak flow, enhance infiltration, and maintain or restore protective areas. Installation and maintenance of silt fence, tracking control devices, inlet protection, and dust control, if needed, shall be maintained by the Contractor during construction. Erosion control matting shall be installed as soon as practicable after grading operations have been completed. Seeding and fertilizing or sodding shall take place as soon as practicable after final grading has been completed. The use, storage, and disposal of chemicals, cement, and other compounds or construction materials used on site shall be managed by the Contractor during the construction period to prevent their entrance into waters of the state.

Protection of infiltrating BMPs: Avoid operating heavy equipment in the location of designated BMP aeras to minimize soil compaction and delay excavation of BMP basins to the extent practical until all other earth work has been completed. Use low ground pressure equipment when possible. Provide silt fence around the basins so sediment cannot reach the floor or leaving the floor as native soil until it is time to over-excavate and replace with engineered soil.

Groundwater Limitations: No portion of the utilities or storm water BMP's are expected to encounter ground water.

Separation Distances: No facilities or natural features requiring a minimum separation distance are known to exist near the project site.

Long-Term Maintenance: For any permanent structures, provisions shall be made for long-term maintenance with the municipality or other responsible party. The BMPs utilized will need proper upkeep and attention to vegetation as described in the Operation and Maintenance Plan and included in **Appendix D.** A draft Long Term Maintenance Agreement is included in **Appendix E.**

Sediment Removal: Management of accumulated sediment removed from storm water management structures shall be handled or disposed of in accordance with NR 528 in a manner that protects public health, safety, the environment, and reduces the need to dispose of accumulated sediment in landfills. Except in cases where the accumulated sediment will be disposed of in a licensed landfill, the sediment manager shall properly complete the *Accumulated Sediment End Use Certification* from in accordance with NR 528.06.

Management Practices: The best management practices implemented in this project are a bio-infiltration device in order to meet the requirements of NR 151. These practices were selected for their ability to meet TSS removal requirements and to reduce peak runoff flows without significantly reducing the area available for parking.

Reporting and Monitoring Requirements

Records: The permittee shall retain records of all construction site inspections, copies of all reports and plans required by the permit, and records of all data used to obtain coverage under the permit. Minimum periods of retention are as follows:

(a) The erosion control and storm water management plans and amendments to the erosion control and storm water management plans shall be retained at the construction site until permit coverage is terminated in accordance with s. NR 216.55.

(b) All reports, amendments and background information used in their preparation, shall be kept for a period of at least 3 years from the date of notice of termination.

Local Approvals: A landowner operating a construction site under approved municipal sediment and erosion plans, grading plans, or storm water management plans shall also submit signed copies of the notice of intent to the local agency approving the plans. If storm water from the construction site discharges to a municipal separate storm sewer system that is regulated under a municipal storm water discharge permit, then a signed copy of the notice of intent shall also be sent to the operator of the system.

Additional Information: Upon request by the Department, the permittee or landowner shall provide a copy of the erosion control and storm water management plans, construction site inspections and any additional data requested, within 5 working days to the Department, to the operator of the municipal storm sewer system that receives the storm water discharge, and any municipal agency approving sediment and erosion plans, grading plans or storm water management plans. Additional information may be requested by the WDNR for resource waters that require additional protection such as outstanding or exceptional resource waters, or other sensitive water resources.

Inspections and Maintenance: The permittee or landowner shall:

(a) Conduct the following construction site inspections:
    (1) Weekly inspections of implemented erosion and sediment control best management practices.
    (2) Inspections of erosion and sediment controls within 24 hours after a precipitation event of 0.5 inches or greater. A precipitation event may be considered to be the total amount of precipitation recorded in any continuous 24-hour period.

(b) Repair or replace erosion and sediment control best management practices as necessary within 24 hours of an inspection or Department notification that repair or replacement is needed.

(c) Maintain, at the construction site or available via an Internet website, weekly written reports of all inspections conducted by or for the permittee or landowner. The landowner shall notify the Wisconsin Department of Safety and Professional Services of all appropriate Internet addresses to access the weekly inspection records. Weekly inspection reports shall include all of the following:
    (1) The date, time, and location of the construction site inspection.
    (2) The name of the individual who performed the inspection.
    (3) An assessment of the condition of erosion and sediment controls.
    (4) A description of any erosion and sediment control best management practice implementation and maintenance performed.
    (5) A description of the present phase of land disturbing construction activity at the construction site.

Conformance with other applicable regulations

Local compliance: The erosion control and storm water management plans shall document applicable municipal regulatory provisions, compliance with which will also meet the requirements of the permit. If these municipal provisions are more stringent than those provisions appearing in a permit issued pursuant to NR 216, the erosion control and storm water management plans shall include a description of how compliance with municipal provisions

will be achieved. This plan is in compliance with DNR and Department of Safety and Professional Services regulations.

Plumbing regulations: The erosion control and storm water management plans shall be in compliance with applicable state plumbing regulations.

Amendments

Landowner initiated: The permittee or landowner required to submit a notice of intent under this subchapter shall amend the erosion control and storm water management plans if either of the following occurs:

(a) There is a change in design, construction, operation, or maintenance at the construction site which has the reasonable potential for the discharge of pollutants and which has not otherwise been addressed in the erosion control and storm water management plans.

(b) The actions required by the plan fail to reduce the impacts of pollutants carried by storm water runoff.

Submittal requirements: For construction sites for which there has been earlier department review of the erosion control and storm water management plans, if the permittee or landowner identifies changes needed in either plan, the permittee or the landowner shall notify the WDNR 5 working days prior to making the changes to the plan.

Permit modification: The WDNR may, upon request of a permittee or upon finding of just cause, modify the compliance and reporting schedules or any requirement of a storm water discharge permit.

Use of information

All information contained in the notice of intent other than that specified as confidential shall be available to the public for inspection and copying. All confidential information, so identified, shall be in separate documents. Effluent data is not confidential information. Confidential treatment will be considered only for that information identified as confidential in documents separate from non-confidential information and which meets the requirements of s. 283.55(2)(c), Stats., and for which written application for confidentiality has been made pursuant to s. NR 2.19.

Transfers

A landowner who has submitted a completed notice of intent and does not intend to control the permitted activities on the construction site may transfer authorization of construction site storm water discharge permit coverage to the person who will control the permitted activities. The transfer shall occur upon written notification, signed by both the current permittee and the proposed permittee and sent via certified or registered mail to the Department. Unless the Department notifies the permittee to the contrary, the WDNR will recognize this permit coverage transfer upon receipt of written notification. The WDNR may require additional information to be filed prior to granting coverage under the general WPDES permit. The WDNR may, if appropriate, require an application for an individual WPDES storm water permit.

Notice of termination

When to file: When a construction site has undergone final stabilization, temporary erosion and sediment control best management practices have been removed, all land disturbing construction activities have ceased, and all storm water discharges associated with the construction site activities that were required to have WPDES permit coverage have ceased, the permittee shall submit a signed notice of termination to the WDNR.

Forms: A notice of termination shall be submitted to the WDNR. Data submitted in the notice of termination forms shall be used as a basis for terminating coverage of a storm water discharge permit.

Signature requirements: The notice of termination form shall be signed as required for the notice of intent.

Required information: The notice of termination shall include the following information:

(a) The mailing address and location of the constructions site for which the notice of termination is submitted.

(b) The name, mailing address, and telephone number of the current permittee, as well as any transferee.

(c) The name, mailing address, and telephone number of the general Contractor.

(d) The following signed certification:

"I certify under penalty of law that disturbed soils at the identified site have undergone final stabilization and temporary erosion and sediment control measures have been removed or that all storm water discharges associated with the construction activity that are authorized by a general WPDES permit have otherwise been eliminated. I understand that by submitting this notice of termination, I am no longer authorized to discharge storm water associated with construction activity by the general WPDES permit, and that discharging pollutants in storm water associated with construction activity to waters of Wisconsin is unlawful where the discharge is not authorized by a general WPDES permit."

Effective Date: Termination of coverage under the permit shall be effective upon written confirmation of the permit termination by the WDNR to the permittee.

LIVE WELL CHIROPRACTIC CLINIC NEW BUILDING

PHASE 2 OF STH 16 CLINICS DEVELOPMENT – LA CROSSE

Storm Water Management Plan

APPENDIX A – Aerial Photos & Maps of Project Site

ArcGIS Web Map



8/26/2025, 10:14:45 AM

1:4,514

0 0.03 0.06 0.11 mi

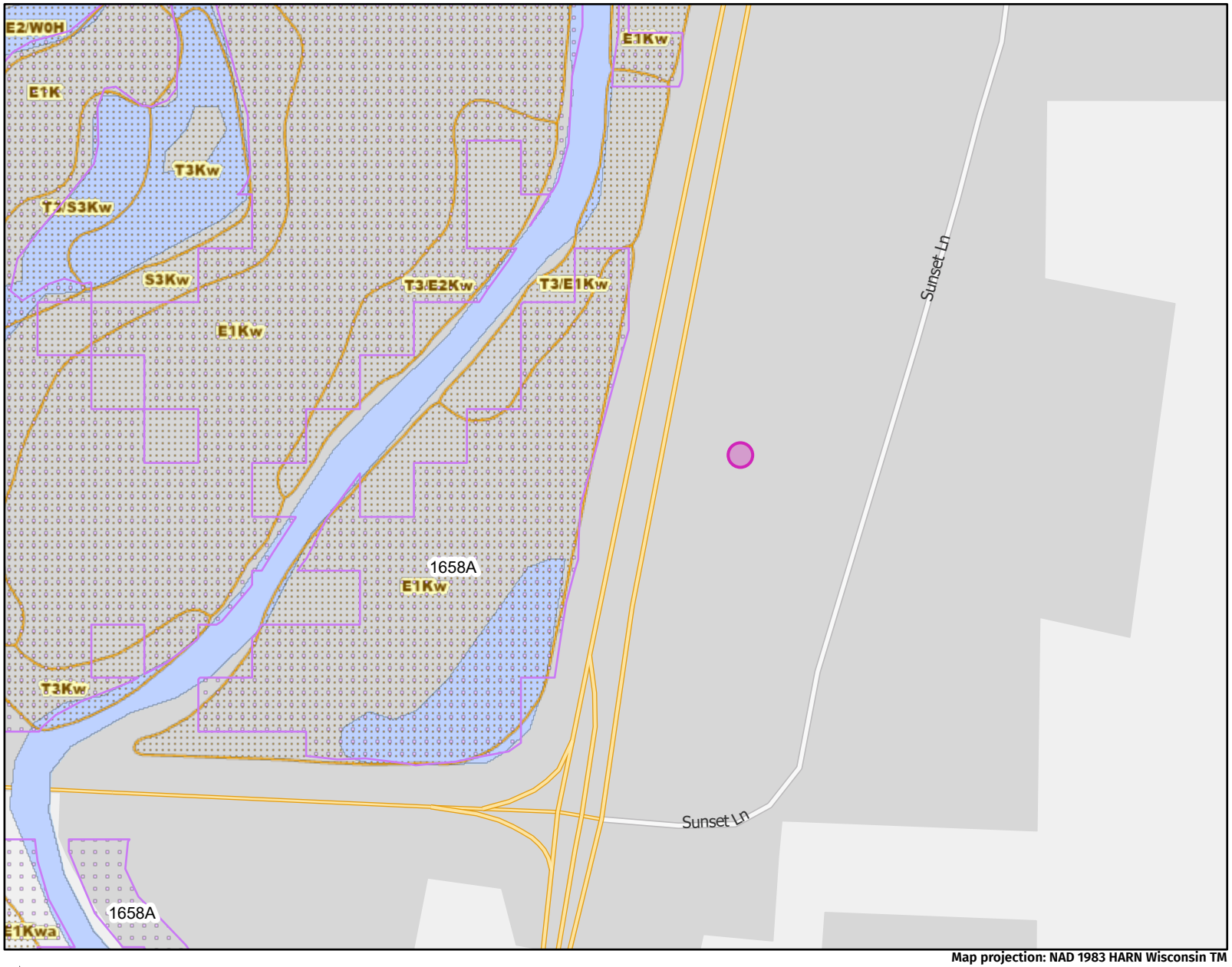
0 0.04 0.09 0.17 km

- Municipality Limits Labels
- Municipality Limits
- Road Centerlines
- State Highway
- County Highway
- Local Road
- Named Private Drive
- Property Owners with Assessments
- Lakes & Rivers
- Lake & River Labels

La Crosse County WI Zoning Planning and Land Information Department
212 6th St N, Suite 1300
La Crosse, WI 54601
https://lacrossecounty.org/zoning
608-785-9722

Representative Fraction (RF) or Natural Scale: 1:1200 (this is the same as 1/1200) The RF says that 1 of any measurement on the map equals 1200 of the same measurement on the original surface;

WISCONSIN DEPARTMENT OF NATURAL RESOURCES



Legend: (some map layers may not be displayed)

- Wetland Indicators
- Wetland Class Areas
- Rivers and Streams
- Intermittent Streams
- Open Water
- 24K Lakes and Open Water

Notes:



Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 250 500 Feet
0 70 140 Meters

Service Layer Credits:
DNR Basic Feature Vector Tile Layer WTM: , Surface Water (Cached): WiDNR, USGS, and other data, Wetland Inventory NWI (Dynamic): Calvin Lawrence, Dennis Weise, Nina Rihn

This map is a product generated by a DNR web mapping application.

This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: https://dnr.wisconsin.gov/legal.

Date Printed: 10/2/2025 1:12 PM

LIVE WELL CHIROPRACTIC CLINIC NEW BUILDING

PHASE 2 OF STH 16 CLINICS DEVELOPMENT – LA CROSSE

Storm Water Management Plan

APPENDIX B – Soils Report

NOTE: All Space Matters, Inc. recently sold the south parcel to Dr. Angela Frank

Wis. Dept. of Safety and Professional Services
Division of Industry Services

SOIL EVALUATION - STORM

in accordance with SPS 382.365 and 385, Wis. Adm. Code

Attach complete site plan on paper not less than 8 1/2 x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent slope, scale or dimensions, north arrow, and BM referenced to nearest road.

Please print all information.

Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04 (1) (m)).

County: La Crosse

Parcel I.D.: 17-10460-130 and 17-10460-110

Reviewed by: Date:

Property Owner	Property Location
All Space Matters and LAXVC Holdings	Govt. Lot SE 1/4 NE 1/4 S 21 T 16 N R 07 E (or) W
Property Owner's Mailing Address: W4917 Battlestone Rd	Lot # / Block # / Subd. Name or CSM#:
City: La Crosse; State: WI; Zip Code: 54601; Phone Number: (414) 897-3500	[x] City [ ] Village [ ] Town; Nearest Road: SR-16

Drainage area _____ [ ] sq. ft. [ ] acres

Optional:

Test Site Suitable for (check all that apply)

[ ] Irrigation [ ] Bioretention trench [ ] Trench(es)

[ ] Rain garden [ ] Grassed swale [ ] Reuse

[ ] Infiltration trench [ ] SDS (> 15' wide) [ ] Other _____

Hydraulic Application Test Method:

[x] Morphological Evaluation

[ ] Double-Ring Infiltrometer

[ ] Other (specify) _____

1 Obs. # [ ] Boring [x] Pit Ground surface elev. 678.0 ft. Depth to limiting factor 125 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-20	10YR 3/3		sil	2msbk	mfr	cs	0	0.13
2	20-53	10YR 4/4		sil	2mabk	mfr	gs	0	0.13
3	53-91	10YR 4/4		sil	1msbk	mfr	cs	0	0.13
4	91-125	10YR 6/4 & 7.5YR 5/8		lfs	0sg	ml	-	0	0.50

2 Obs. # [ ] Boring [x] Pit Ground surface elev. 679.0 ft. Depth to limiting factor 125 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-20	10YR 3/3		sil	2msbk	mfr	cs	0	0.13
2	20-54	10YR 4/4		sil	2mabk	mfr	gs	0	0.13
3	54-125	10YR 5/4		sil	1csbk	mfr	-	0	0.13

CST/PSS Name (Please Print)	Signature	CST/PSS Number
Mark Palmer		224736
Address	**Date Evaluation Conducted**	**Telephone Number**
PO Box 176, Galesville, WI 54630	09-17-2025	608-582-2205

Property Owner All Space Matters Parcel ID # 17-10460-130 Page 2 of 2

3 Obs. # ☐ Boring ☒ Pit Ground surface elev. 682.1 ft. Depth to limiting factor 120 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-12	-	gravel fill	-	-	-	-	-	
2	12-70	10YR 4/4		sil	2msbk	mfr	gs	0	0.13
3	70-120	7.5YR 4/4		sicl	1msbk	mfr	-	0	0.03
	#3 with few thin cl bands and pockets of 10YR 5/4			sil					

4 Obs. # ☐ Boring ☒ Pit Ground surface elev. 687.9 ft. Depth to limiting factor 70 in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr
1	0-10	10YR 3/3		sil	2msbk	mfr	gs	0	0.13
2	10-42	10YR 4/4		sil	2mabk	mfr	gs	0	0.13
3	42-70	7.5YR 4/4		sicl	1csbk	mfr	cs	0	0.13
4	70+	-	poorly cemented sandstone	-	-	-	-	-	-

Obs. # ☐ Boring ☐ Pit Ground surface elev. _____ ft. Depth to limiting factor _____ in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr

Property Owner _____ Parcel ID # _____ Page _____ of _____

☐ Obs. # ☐ Boring ☐ Pit Ground surface elev. _____ ft. Depth to limiting factor _____ in.

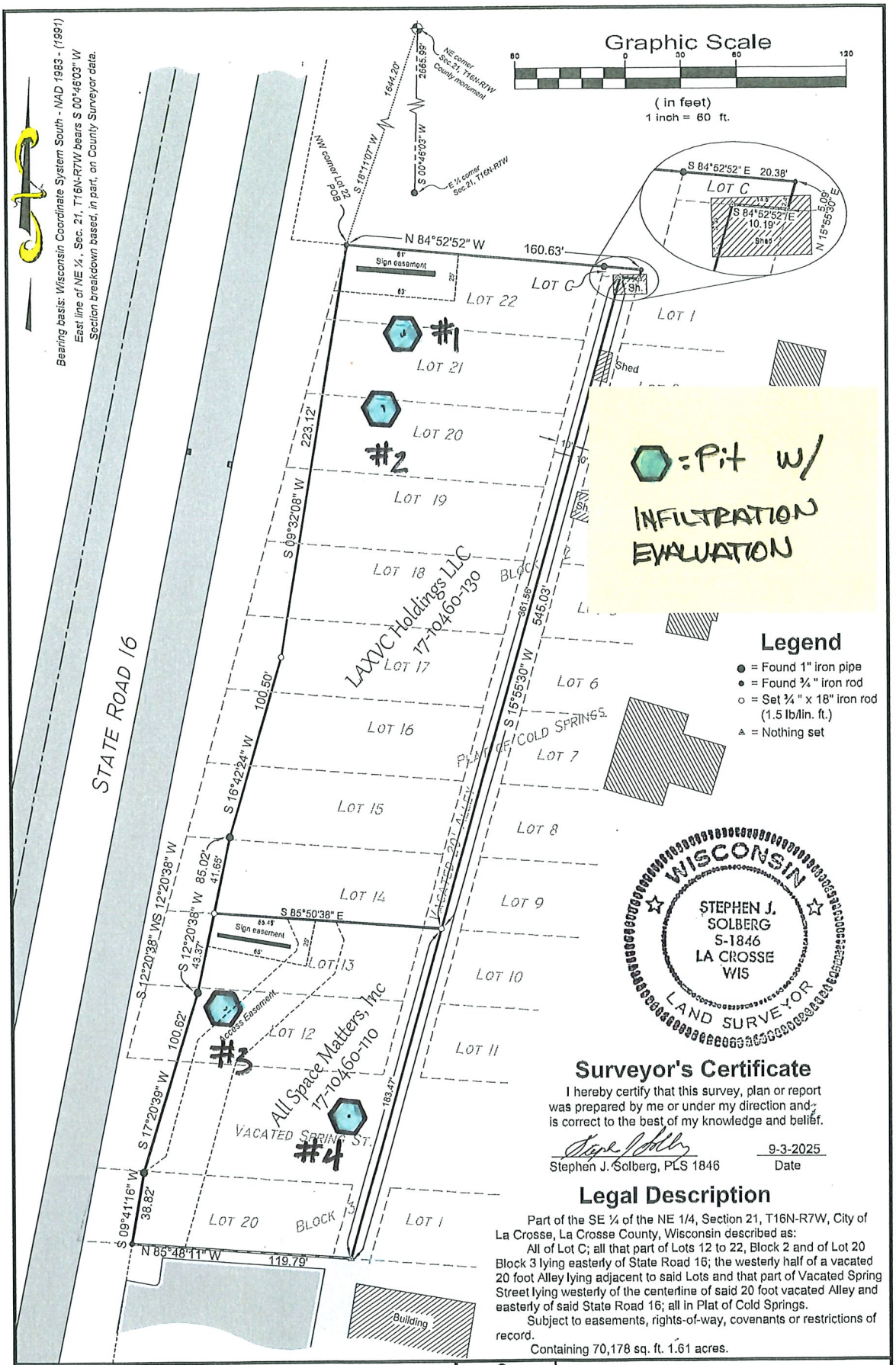
Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr

☐ Obs. # ☐ Boring ☐ Pit Ground surface elev. _____ ft. Depth to limiting factor _____ in.

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr

Test Results and/or Summary Comments

The Dept. of Safety and Professional is an equal opportunity service provider and employer. If you need assistance to access services or need material in an alternate format, contact the department at 608-266-3151 or TTY through Relay.



Surveyor's Certificate

I hereby certify that this survey, plan or report was prepared by me or under my direction and is correct to the best of my knowledge and belief.

Stephen J. Solberg, PLS 1846 — Date: 9-3-2025

Legal Description

Part of the SE ¼ of the NE 1/4, Section 21, T16N-R7W, City of La Crosse, La Crosse County, Wisconsin described as:

All of Lot C; all that part of Lots 12 to 22, Block 2 and of Lot 20 Block 3 lying easterly of State Road 16; the westerly half of a vacated 20 foot Alley lying adjacent to said Lots and that part of Vacated Spring Street lying westerly of the centerline of said 20 foot vacated Alley and easterly of said State Road 16; all in Plat of Cold Springs.

Subject to easements, rights-of-way, covenants or restrictions of record.

Containing 70,178 sq. ft. 1.61 acres.

LAXVC & All Space Matters

Part Lot 20, Bl 3, part Lots 12-20 Bl 2 & Lot C
Part Vacated Alley & part Vacated Spring St
SE ¼ of the NE 1/4, Section 21, T16N-R7W
City of La Crosse, La Crosse County, WI
Parcel Nos.: 17-10460-110 & 17-10460-130

HIGH CLIFF CONSULTING LLC
P.O. Box 176, Galesville, WI 54630
608-582-2205 survey@highcliffconsulting.com
www.highcliffconsulting.com

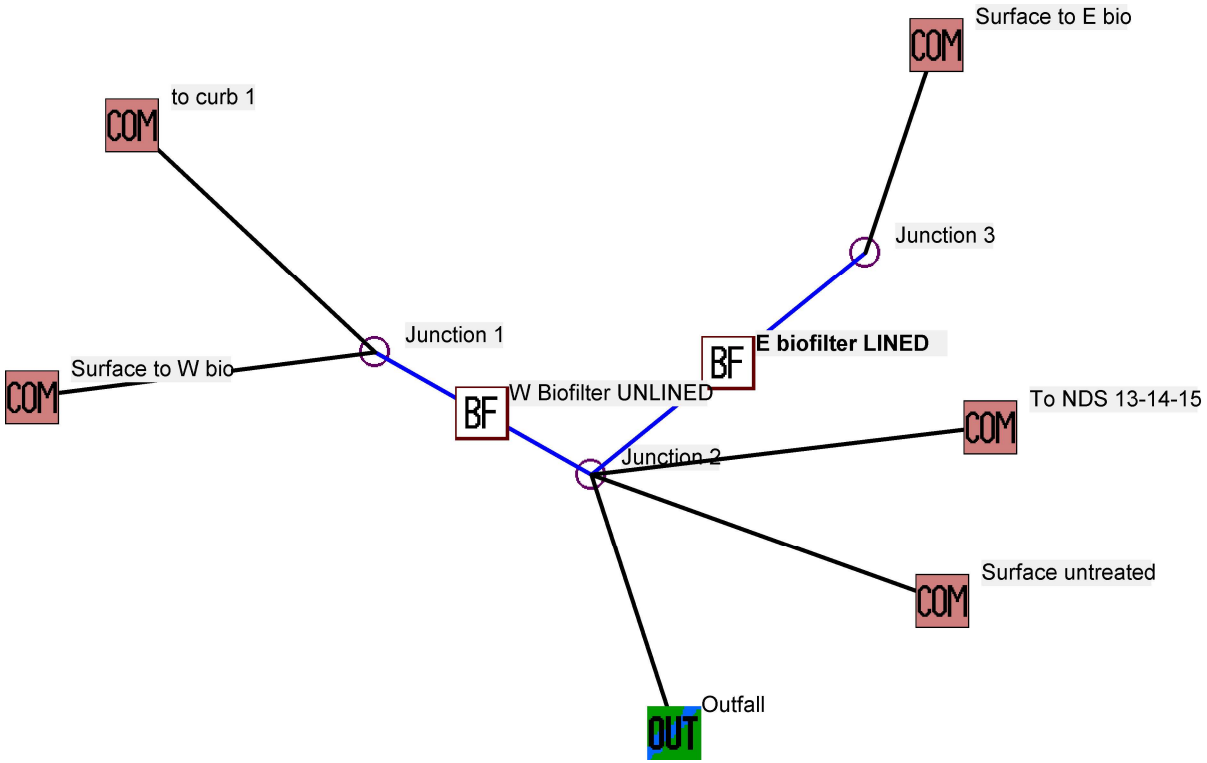
Drawn by:	Date:	Job No:	Sheet:
SJS	9-3-2025	COLDSPRINGS	1 of 1

LIVE WELL CHIROPRACTIC CLINIC NEW BUILDING

PHASE 2 OF STH 16 CLINICS DEVELOPMENT – LA CROSSE

Storm Water Management Plan

APPENDIX C – Modeling Results


Surface to E bio
COM
to curb 1
COM
Junction 3
Junction 1
BF
E biofilter LINED
Surface to W bio
COM
BF
W Biofilter UNLINED
To NDS 13-14-15
COM
Junction 2
Surface untreated
COM
Outfall
OUT

Data file name: F:\Engineering\Engineering Dwg\2025\25-089 Hwy 16 Clinics -Dale Jacobson\Storm\models\Chiro\Mar '26 updates\Chiro SLAMM proposed V6 No Run
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/01/81 Study period ending date: 12/31/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 03-11-2026 Time: 10:27:38
Site information:

LU# 1 - Commercial: Surface to E bio Total area (ac): 0.043
1 - Roofs 1: 0.014 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.005 ac. Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
32 - Sidewalks 2: 0.001 ac. Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.018 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.005 ac. PSD File: Source Area PSD File:

LU# 2 - Commercial: Surface untreated Total area (ac): 0.198
1 - Roofs 1: 0.042 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.055 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.006 ac. Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.078 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.017 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Commercial: to curb 1 Total area (ac): 0.115
13 - Paved Parking 1: 0.073 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.004 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
32 - Sidewalks 2: 0.002 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.018 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.018 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 4 - Commercial: Surface to W bio Total area (ac): 0.104
13 - Paved Parking 1: 0.005 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.046 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.037 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.005 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.011 ac. PSD File: Source Area PSD File:

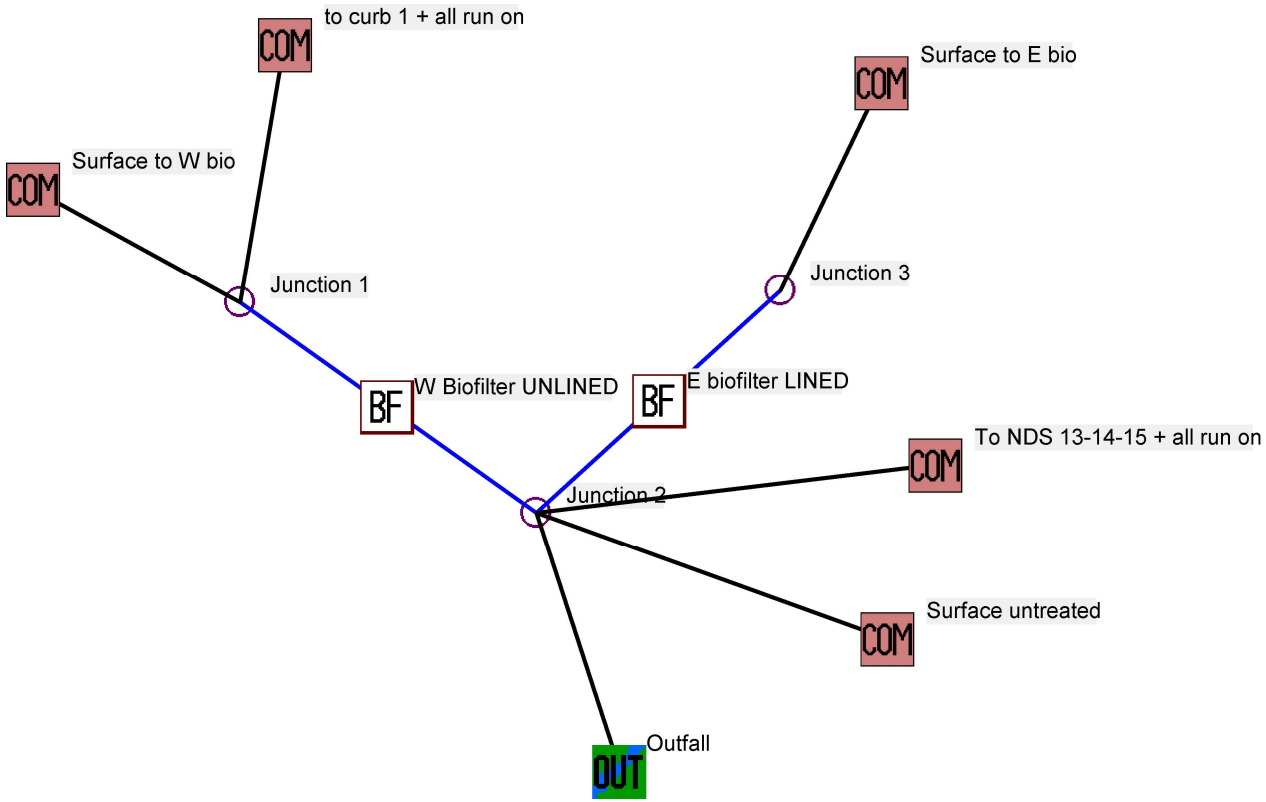
LU# 5 - Commercial: To NDS 13-14-15 Total area (ac): 0.024
51 - Small Landscaped Areas 1: 0.011 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.013 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

SLAMM for Windows Version 10.5.0
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Data file name: F:\Engineering\Engineering Dwg\2025\25-089 Hwy 16 Clinics -Dale Jacobson\Storm\models\Chiro\Mar '26 updates\Chiro SLAMM proposed V6 No Run
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/01/81 Study period ending date: 12/31/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 01/01/81 Model Run End Date: 12/31/81
Date of run: 03-11-2026 Time of run: 10:27:05
Total Area Modeled (acres): 0.484
Years in Model Run: 1.00

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	22509	-	109.9	154.4	-
Outfall Total with Controls:	19330	14.12%	61.59	74.32	51.87%
Annualized Total After Outfall Controls:	19383			74.52	

Biofilter # 1 is expected to clog in 7.35 years.. Percent Solids Reduction due to Engineered Media = 80
Biofilter # 2 is expected to clog in 73.56 years.. Percent Solids Reduction due to Engineered Media = 60


COM
to curb 1 + all run on
COM
Surface to E bio
COM
Surface to W bio
Junction 1
Junction 3
BF
W Biofilter UNLINED
BF
E biofilter LINED
COM
To NDS 13-14-15 + all run on
Junction 2
COM
Surface untreated
OUT
Outfall

Data file name: F:\Engineering\Engineering Dwg\2025\25-089 Hwy 16 Clinics -Dale Jacobson\Storm\models\Chiro\Mar '26 updates\Chiro SLAMM proposed V9 + Run o
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/01/81 Study period ending date: 12/31/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 03-11-2026 Time: 11:28:52
Site information:

LU# 1 - Commercial: Surface to E bio Total area (ac): 0.042
1 - Roofs 1: 0.014 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.013 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.011 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.004 ac. PSD File: Source Area PSD File:

LU# 2 - Commercial: Surface untreated Total area (ac): 0.226
1 - Roofs 1: 0.042 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.055 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.011 ac. Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.096 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.022 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Commercial: to curb 1 + all run on Total area (ac): 0.564
1 - Roofs 1: 0.032 ac. Pitched Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.c
2 - Roofs 2: 0.034 ac. Pitched Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.c
13 - Paved Parking 1: 0.052 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
14 - Paved Parking 2: 0.017 ac. Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.c
15 - Paved Parking 3: 0.073 ac. Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.c
31 - Sidewalks 1: 0.006 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.011 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.018 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
53 - Small Landscaped Areas 3: 0.018 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
54 - Small Landscaped Areas 4: 0.046 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
55 - Small Landscaped Areas 5: 0.142 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
56 - Small Landscaped Areas 6: 0.115 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 4 - Commercial: Surface to W bio + LAXVC SW run on Total area (ac): 0.104
13 - Paved Parking 1: 0.005 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.046 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.037 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.011 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
70 - Water Body Areas: 0.005 ac. PSD File: Source Area PSD File:

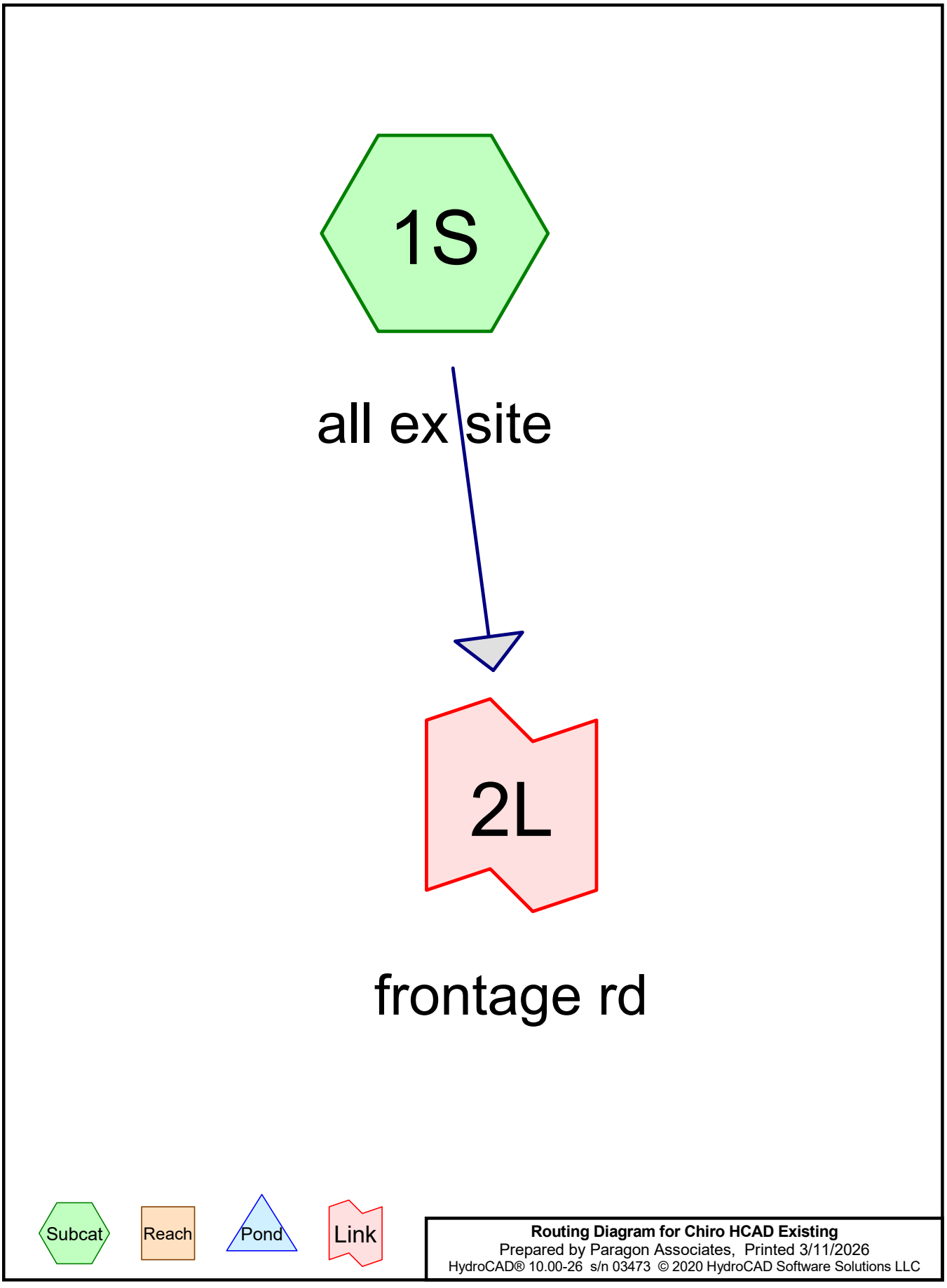
LU# 5 - Commercial: To NDS 13-14-15 + all run on Total area (ac): 0.402
1 - Roofs 1: 0.034 ac. Pitched Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.c
13 - Paved Parking 1: 0.184 ac. Disconnected Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.c
51 - Small Landscaped Areas 1: 0.011 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.161 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
53 - Small Landscaped Areas 3: 0.012 ac. Normal Silty PSD File: C:\WinSLAMM Files\NURP.cpz Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

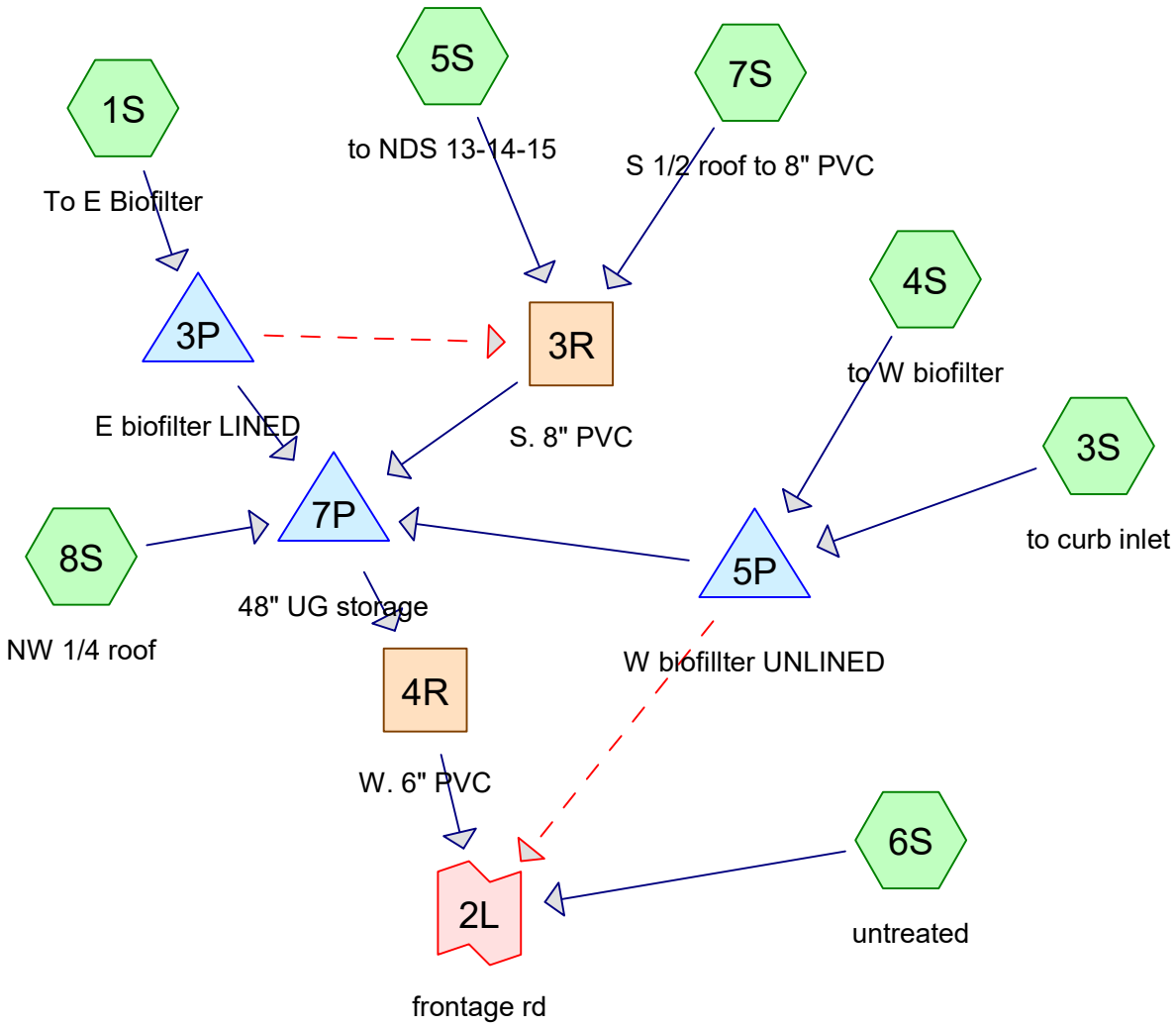
SLAMM for Windows Version 10.5.0
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Data file name: F:\Engineering\Engineering Dwg\2025\25-089 Hwy 16 Clinics -Dale Jacobson\Storm\models\Chiro\Mar '26 updates\Chiro SLAMM proposed V9 + Run o
WinSLAMM Version 10.5.0
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/01/81 Study period ending date: 12/31/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 01/01/81 Model Run End Date: 12/31/81
Date of run: 03-11-2026 Time of run: 11:28:04
Total Area Modeled (acres): 1.338
Years in Model Run: 1.00

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	25719	-	125.8	202.0	-
Outfall Total with Controls:	22666	11.87%	75.83	107.3	46.88%
Annualized Total After Outfall Controls:	22728			107.6	

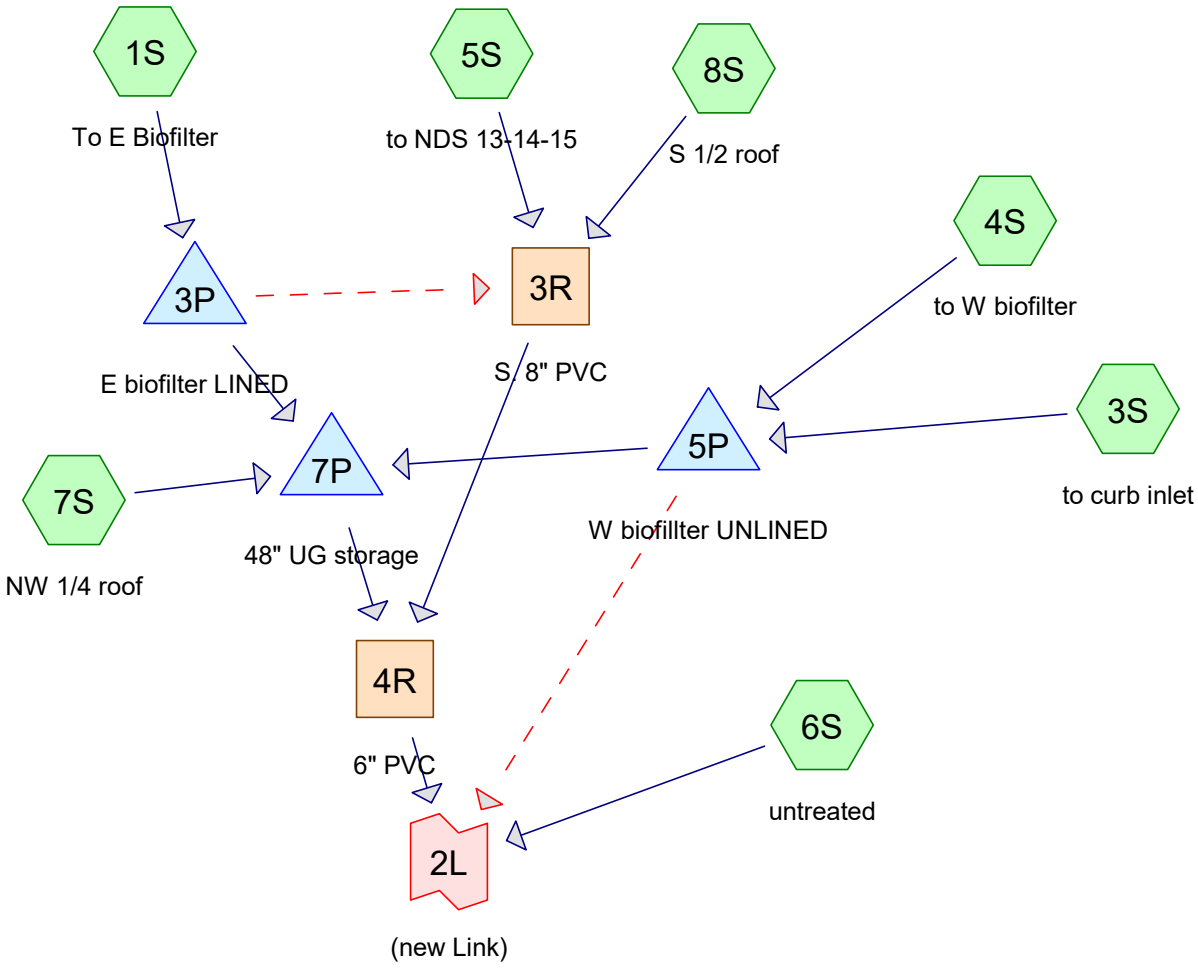
Biofilter # 1 is expected to clog in 6.16 years.. Percent Solids Reduction due to Engineered Media = 80
Biofilter # 2 is expected to clog in 68.19 years.. Percent Solids Reduction due to Engineered Media = 60


1S
all ex site
2L
frontage rd
Subcat
Reach
Pond
Link
Routing Diagram for Chiro HCAD Existing
Prepared by Paragon Associates, Printed 3/11/2026
HydroCAD® 10.00-26 s/n 03473 © 2020 HydroCAD Software Solutions LLC



Subcat Reach Pond Link

Routing Diagram for Chiro HCAD Proposed Chiro only AMENDED
Prepared by Paragon Associates, Printed 3/11/2026
HydroCAD® 10.00-26 s/n 03473 © 2020 HydroCAD Software Solutions LLC



Subcat Reach Pond Link

Routing Diagram for Chiro HCAD Proposed + Run On
Prepared by Paragon Associates, Printed 3/11/2026
HydroCAD® 10.00-26 s/n 03473 © 2020 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.046	98	N part driveway (4S)
0.005	98	N part parking lot (4S)
0.011	61	NDS 13 lawn (5S)
0.013	61	NDS 14-15 lawn berm, HSG B, good (5S)
0.015	98	NE 1/4 roof (1S)
0.014	98	NW 1/4 roof (7S)
0.027	98	S 1/2 roof (8S)
0.055	98	S driveway (6S)
0.073	98	S part parking lot (3S)
0.004	98	SW (3S)
0.022	61	bark mulch landscape (4S, 6S)
0.015	100	bio media (1S, 4S)
0.018	61	lawn above wall (3S)
0.161	61	lawn run on 1825 (5S)
0.142	61	lawn run on 1835 (3S)
0.046	61	lawn run on 1845 (3S)
0.151	61	lawn, HSG B, good (1S, 3S, 4S, 6S)
0.115	61	lwan run on 1825 (3S)
0.014	98	retain wall (1S, 3S, 6S)
0.321	98	roof+drive run on 1825 (3S, 5S)
0.049	98	roof+drive run on 1835 (3S)
1.317	**79**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.164	HSG B	1S, 3S, 4S, 5S, 6S
0.000	HSG C	
0.000	HSG D	
1.153	Other	1S, 3S, 4S, 5S, 6S, 7S, 8S
1.317		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.046	0.046	N part driveway	4S
0.000	0.000	0.000	0.000	0.005	0.005	N part parking lot	4S
0.000	0.000	0.000	0.000	0.011	0.011	NDS 13 lawn	5S
0.000	0.013	0.000	0.000	0.000	0.013	NDS 14-15 lawn berm	5S
0.000	0.000	0.000	0.000	0.015	0.015	NE 1/4 roof	1S
0.000	0.000	0.000	0.000	0.014	0.014	NW 1/4 roof	7S
0.000	0.000	0.000	0.000	0.027	0.027	S 1/2 roof	8S
0.000	0.000	0.000	0.000	0.055	0.055	S driveway	6S
0.000	0.000	0.000	0.000	0.073	0.073	S part parking lot	3S
0.000	0.000	0.000	0.000	0.004	0.004	SW	3S
0.000	0.000	0.000	0.000	0.022	0.022	bark mulch landscape	4S, 6S
0.000	0.000	0.000	0.000	0.015	0.015	bio media	1S, 4S
0.000	0.151	0.000	0.000	0.000	0.151	lawn	1S, 3S, 4S, 6S
0.000	0.000	0.000	0.000	0.018	0.018	lawn above wall	3S
0.000	0.000	0.000	0.000	0.161	0.161	lawn run on 1825	5S
0.000	0.000	0.000	0.000	0.142	0.142	lawn run on 1835	3S
0.000	0.000	0.000	0.000	0.046	0.046	lawn run on 1845	3S
0.000	0.000	0.000	0.000	0.115	0.115	lwan run on 1825	3S
0.000	0.000	0.000	0.000	0.014	0.014	retain wall	1S, 3S, 6S
0.000	0.000	0.000	0.000	0.321	0.321	roof+drive run on 1825	3S, 5S
0.000	0.000	0.000	0.000	0.049	0.049	roof+drive run on 1835	3S
0.000	**0.164**	**0.000**	**0.000**	**1.153**	**1.317**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	3R	676.38	675.93	87.0	0.0052	0.010	8.0	0.0	0.0
2	4R	668.80	658.52	77.0	0.1335	0.010	6.0	0.0	0.0
3	7P	669.82	669.80	4.0	0.0050	0.010	5.0	0.0	0.0

Notes Listing (all nodes)

Line#	Node Number	Notes
1	Project	Rainfall events imported from "NRCS-Rain.txt" for 9170 WI La Crosse
2		Rainfall events imported from "NRCS-Rain.txt" for 9170 WI La Crosse

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: To E Biofilter Runoff Area=1,875 sf 57.33% Impervious Runoff Depth>1.63"
Flow Length=25' Tc=8.0 min CN=WQ Runoff=0.09 cfs 0.006 af

Subcatchment 3S: to curb inlet Runoff Area=24,840 sf 40.58% Impervious Runoff Depth>1.23"
Flow Length=300' Tc=30.0 min CN=WQ Runoff=0.50 cfs 0.058 af

Subcatchment 4S: to W biofilter Runoff Area=4,490 sf 59.91% Impervious Runoff Depth>1.68"
Flow Length=140' Tc=6.0 min CN=WQ Runoff=0.24 cfs 0.014 af

Subcatchment 5S: to NDS 13-14-15 Runoff Area=17,550 sf 54.13% Impervious Runoff Depth>1.53"
Flow Length=275' Tc=30.0 min CN=WQ Runoff=0.46 cfs 0.051 af

Subcatchment 6S: untreated Runoff Area=6,820 sf 39.15% Impervious Runoff Depth>1.20"
Flow Length=100' Tc=15.0 min CN=WQ Runoff=0.19 cfs 0.016 af

Subcatchment 7S: NW 1/4 roof Runoff Area=595 sf 100.00% Impervious Runoff Depth>2.58"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 8S: S 1/2 roof Runoff Area=1,190 sf 100.00% Impervious Runoff Depth>2.58"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.10 cfs 0.006 af

Reach 3R: S. 8" PVC Avg. Flow Depth=0.30' Max Vel=3.10 fps Inflow=0.48 cfs 0.057 af
8.0" Round Pipe n=0.010 L=87.0' S=0.0052 '/' Capacity=1.13 cfs Outflow=0.47 cfs 0.057 af

Reach 4R: 6" PVC Avg. Flow Depth=0.20' Max Vel=12.09 fps Inflow=0.86 cfs 0.125 af
6.0" Round Pipe n=0.010 L=77.0' S=0.1335 '/' Capacity=2.67 cfs Outflow=0.86 cfs 0.125 af

Pond 3P: E biofilter LINED Peak Elev=680.51' Storage=121 cf Inflow=0.09 cfs 0.006 af
Discarded=0.00 cfs 0.000 af Primary=0.03 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.005 af

Pond 5P: W biofillter UNLINED Peak Elev=676.18' Storage=1,047 cf Inflow=0.56 cfs 0.073 af
Discarded=0.00 cfs 0.001 af Primary=0.49 cfs 0.060 af Secondary=0.16 cfs 0.002 af Outflow=0.67 cfs 0.063 af

Pond 7P: 48" UG storage Peak Elev=670.69' Storage=90 cf Inflow=0.55 cfs 0.068 af
5.0" Round Culvert n=0.010 L=4.0' S=0.0050 '/' Outflow=0.42 cfs 0.067 af

Link 2L: (new Link) Inflow=1.08 cfs 0.142 af
Primary=1.08 cfs 0.142 af

Total Runoff Area = 1.317 ac Runoff Volume = 0.154 af Average Runoff Depth = 1.41"
51.53% Pervious = 0.679 ac 48.47% Impervious = 0.638 ac

Summary for Subcatchment 1S: To E Biofilter

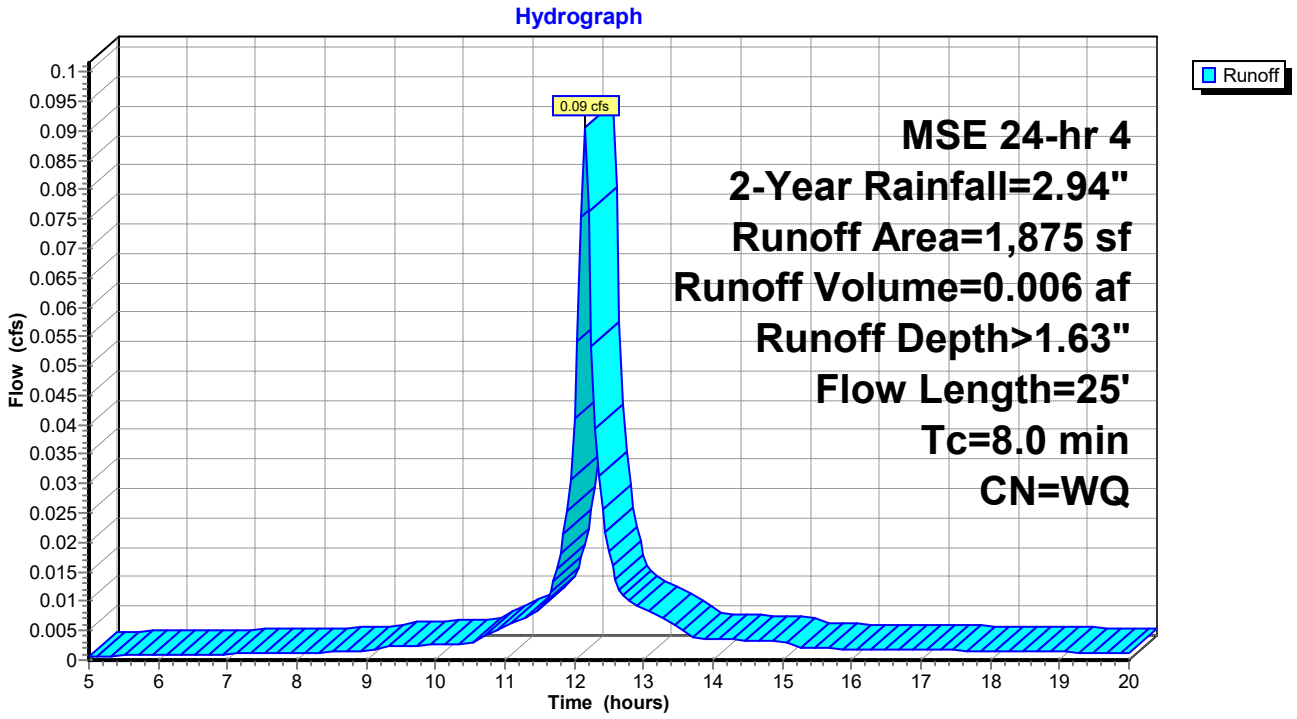
Runoff = 0.09 cfs @ 12.15 hrs, Volume= 0.006 af, Depth> 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	800	61	lawn, HSG B, good
*	645	98	NE 1/4 roof
*	210	100	bio media
*	220	98	retain wall
	1,875		Weighted Average
	800		42.67% Pervious Area
	1,075		57.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	25		0.05		**Direct Entry, lawn above wall to E bio**

Subcatchment 1S: To E Biofilter



Hydrograph for Subcatchment 1S: To E Biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.00
5.75	0.17	0.00	0.00
6.00	0.18	0.00	0.00
6.25	0.19	0.00	0.00
6.50	0.21	0.00	0.00
6.75	0.22	0.00	0.00
7.00	0.23	0.00	0.00
7.25	0.25	0.00	0.00
7.50	0.26	0.00	0.00
7.75	0.28	0.00	0.00
8.00	0.29	0.00	0.00
8.25	0.31	0.00	0.00
8.50	0.32	0.00	0.00
8.75	0.34	0.00	0.00
9.00	0.36	0.00	0.00
9.25	0.38	0.00	0.00
9.50	0.41	0.00	0.00
9.75	0.44	0.00	0.00
10.00	0.47	0.00	0.00
10.25	0.50	0.00	0.00
10.50	0.53	0.00	0.00
10.75	0.57	0.01	0.00
11.00	0.64	0.02	0.01
11.25	0.71	0.03	0.01
11.50	0.80	0.05	0.01
11.75	0.96	0.10	0.02
12.00	1.38	0.28	**0.04**
12.25	1.98	0.63	**0.05**
12.50	2.14	0.74	0.02
12.75	2.23	0.80	0.01
13.00	2.30	0.86	0.01
13.25	2.37	0.90	0.01
13.50	2.41	0.94	0.01
13.75	2.44	0.96	0.00
14.00	2.47	0.98	0.00
14.25	2.50	1.00	0.00
14.50	2.53	1.02	0.00
14.75	2.56	1.04	0.00
15.00	2.58	1.06	0.00
15.25	2.60	1.07	0.00
15.50	2.62	1.08	0.00
15.75	2.63	1.10	0.00
16.00	2.65	1.11	0.00
16.25	2.66	1.12	0.00
16.50	2.68	1.13	0.00
16.75	2.69	1.14	0.00
17.00	2.71	1.15	0.00
17.25	2.72	1.16	0.00
17.50	2.73	1.17	0.00
17.75	2.75	1.18	0.00
18.00	2.76	1.19	0.00
18.25	2.77	1.20	0.00
18.50	2.78	1.21	0.00
18.75	2.79	1.22	0.00
19.00	2.81	1.23	0.00
19.25	2.82	1.24	0.00
19.50	2.83	1.24	0.00
19.75	2.84	1.25	0.00
20.00	**2.84**	**1.26**	0.00

Summary for Subcatchment 3S: to curb inlet

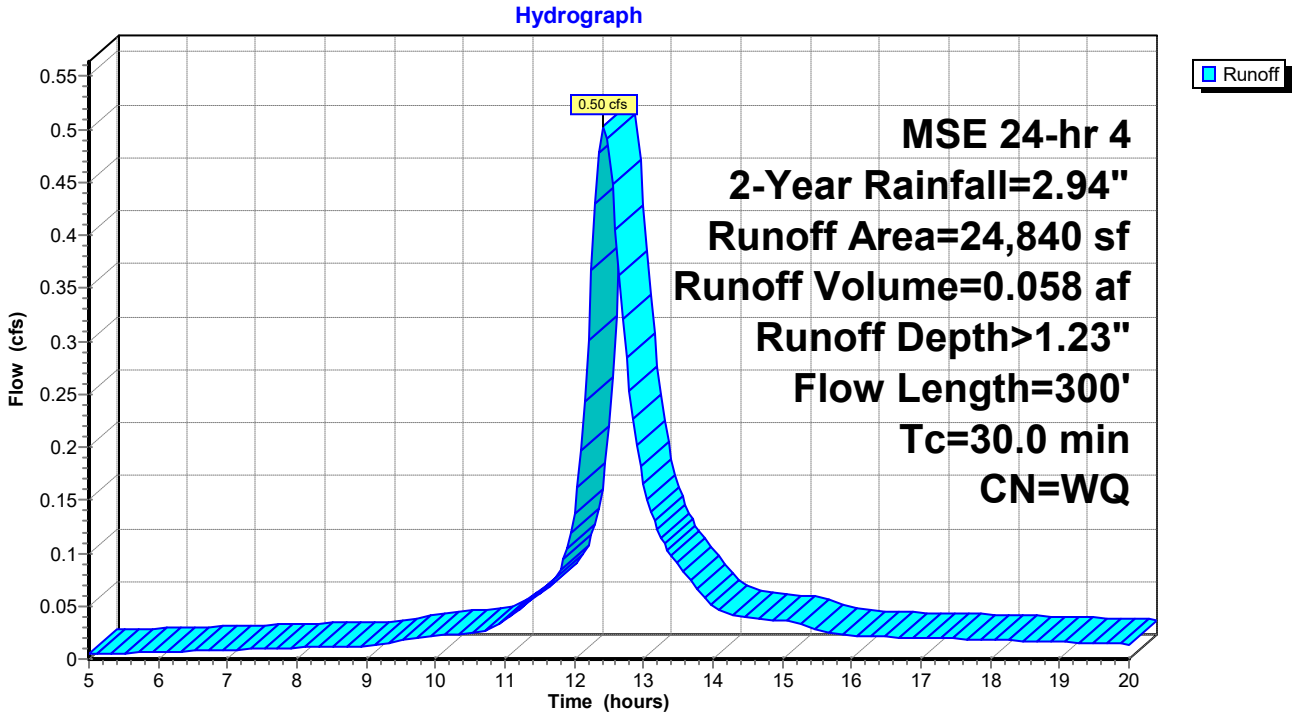
Runoff = 0.50 cfs @ 12.43 hrs, Volume= 0.058 af, Depth> 1.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	3,200	98	S part parking lot
*	160	98	SW
*	780	61	lawn, HSG B, good
*	780	61	lawn above wall
*	100	98	retain wall
*	2,000	61	lawn run on 1845
*	6,200	61	lawn run on 1835
*	2,120	98	roof+drive run on 1835
*	4,500	98	roof+drive run on 1825
*	5,000	61	lwan run on 1825
	24,840		Weighted Average
	14,760		59.42% Pervious Area
	10,080		40.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0	300		0.17		**Direct Entry, 1845 lawn run on**

Subcatchment 3S: to curb inlet



Hydrograph for Subcatchment 3S: to curb inlet

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.01
5.75	0.17	0.00	0.01
6.00	0.18	0.00	0.01
6.25	0.19	0.00	0.01
6.50	0.21	0.00	0.01
6.75	0.22	0.00	0.01
7.00	0.23	0.00	0.01
7.25	0.25	0.00	0.01
7.50	0.26	0.00	0.01
7.75	0.28	0.00	0.01
8.00	0.29	0.00	0.01
8.25	0.31	0.00	0.01
8.50	0.32	0.00	0.01
8.75	0.34	0.00	0.01
9.00	0.36	0.00	0.01
9.25	0.38	0.00	0.01
9.50	0.41	0.00	0.02
9.75	0.44	0.00	0.02
10.00	0.47	0.00	0.02
10.25	0.50	0.00	0.02
10.50	0.53	0.00	0.02
10.75	0.57	0.00	0.03
11.00	0.64	0.00	0.04
11.25	0.71	0.00	0.05
11.50	0.80	0.01	0.06
11.75	0.96	0.03	0.08
12.00	1.38	0.14	0.14
12.25	1.98	0.40	**0.37**
12.50	2.14	0.49	**0.48**
12.75	2.23	0.54	0.29
13.00	2.30	0.58	0.17
13.25	2.37	0.61	0.11
13.50	2.41	0.64	0.09
13.75	2.44	0.66	0.07
14.00	2.47	0.68	0.05
14.25	2.50	0.70	0.04
14.50	2.53	0.71	0.04
14.75	2.56	0.73	0.04
15.00	2.58	0.75	0.04
15.25	2.60	0.76	0.03
15.50	2.62	0.77	0.03
15.75	2.63	0.78	0.02
16.00	2.65	0.79	0.02
16.25	2.66	0.80	0.02
16.50	2.68	0.81	0.02
16.75	2.69	0.81	0.02
17.00	2.71	0.82	0.02
17.25	2.72	0.83	0.02
17.50	2.73	0.84	0.02
17.75	2.75	0.85	0.02
18.00	2.76	0.86	0.02
18.25	2.77	0.86	0.02
18.50	2.78	0.87	0.02
18.75	2.79	0.88	0.02
19.00	2.81	0.89	0.02
19.25	2.82	0.89	0.02
19.50	2.83	0.90	0.01
19.75	2.84	0.91	0.01
20.00	**2.84**	**0.91**	0.01

Summary for Subcatchment 4S: to W biofilter

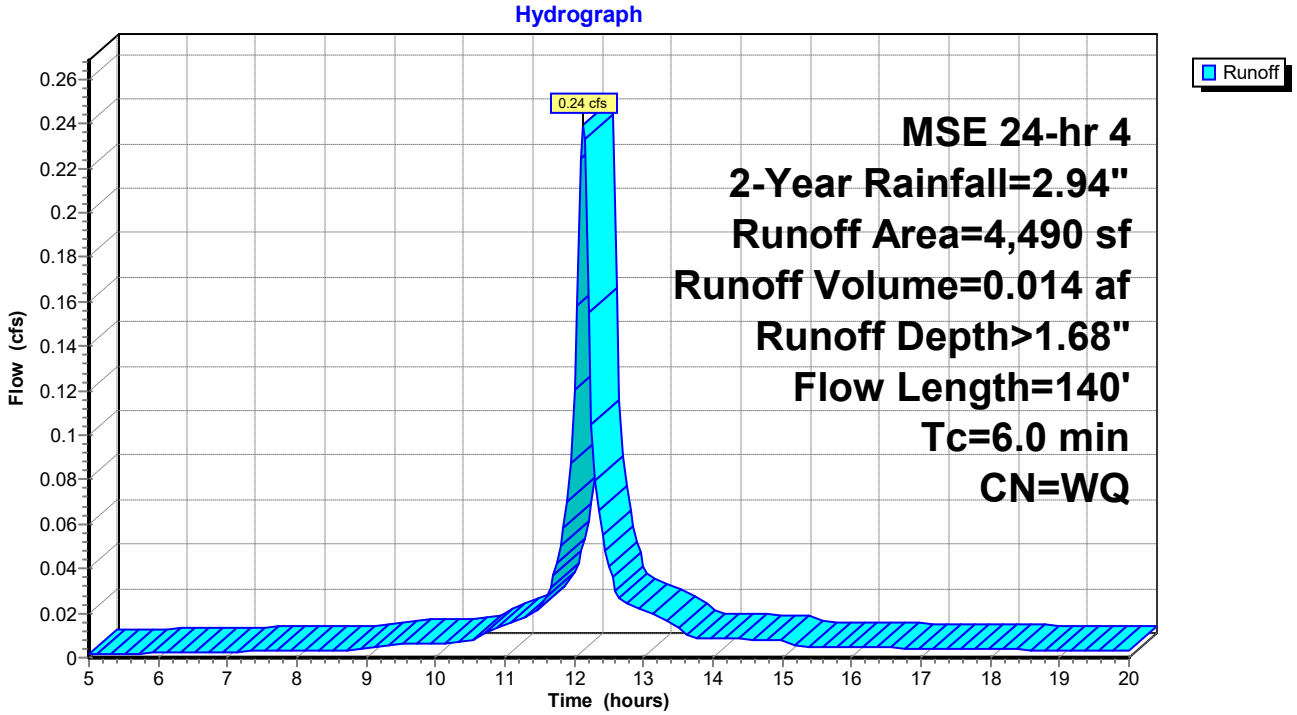
Runoff = 0.24 cfs @ 12.13 hrs, Volume= 0.014 af, Depth> 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	2,000	98	N part driveway
*	230	98	N part parking lot
*	1,600	61	lawn, HSG B, good
*	460	100	bio media
*	200	61	bark mulch landscape
	4,490		Weighted Average
	1,800		40.09% Pervious Area
	2,690		59.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	140		0.39		**Direct Entry, lawn via parking**

Subcatchment 4S: to W biofilter



Hydrograph for Subcatchment 4S: to W biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.00
5.75	0.17	0.00	0.00
6.00	0.18	0.00	0.00
6.25	0.19	0.00	0.00
6.50	0.21	0.00	0.00
6.75	0.22	0.00	0.00
7.00	0.23	0.00	0.00
7.25	0.25	0.00	0.00
7.50	0.26	0.00	0.00
7.75	0.28	0.00	0.00
8.00	0.29	0.00	0.00
8.25	0.31	0.00	0.00
8.50	0.32	0.00	0.00
8.75	0.34	0.00	0.00
9.00	0.36	0.00	0.00
9.25	0.38	0.00	0.01
9.50	0.41	0.00	0.01
9.75	0.44	0.00	0.01
10.00	0.47	0.00	0.01
10.25	0.50	0.00	0.01
10.50	0.53	0.01	0.01
10.75	0.57	0.01	0.01
11.00	0.64	0.02	0.01
11.25	0.71	0.04	0.02
11.50	0.80	0.06	0.02
11.75	0.96	0.12	0.04
12.00	1.38	0.31	**0.12**
12.25	1.98	0.68	**0.10**
12.50	2.14	0.79	0.04
12.75	2.23	0.86	0.02
13.00	2.30	0.91	0.02
13.25	2.37	0.96	0.02
13.50	2.41	0.99	0.01
13.75	2.44	1.01	0.01
14.00	2.47	1.04	0.01
14.25	2.50	1.06	0.01
14.50	2.53	1.08	0.01
14.75	2.56	1.10	0.01
15.00	2.58	1.12	0.01
15.25	2.60	1.13	0.01
15.50	2.62	1.15	0.00
15.75	2.63	1.16	0.00
16.00	2.65	1.17	0.00
16.25	2.66	1.18	0.00
16.50	2.68	1.19	0.00
16.75	2.69	1.20	0.00
17.00	2.71	1.21	0.00
17.25	2.72	1.23	0.00
17.50	2.73	1.24	0.00
17.75	2.75	1.25	0.00
18.00	2.76	1.26	0.00
18.25	2.77	1.26	0.00
18.50	2.78	1.27	0.00
18.75	2.79	1.28	0.00
19.00	2.81	1.29	0.00
19.25	2.82	1.30	0.00
19.50	2.83	1.31	0.00
19.75	2.84	1.32	0.00
20.00	**2.84**	**1.32**	0.00

Summary for Subcatchment 5S: to NDS 13-14-15

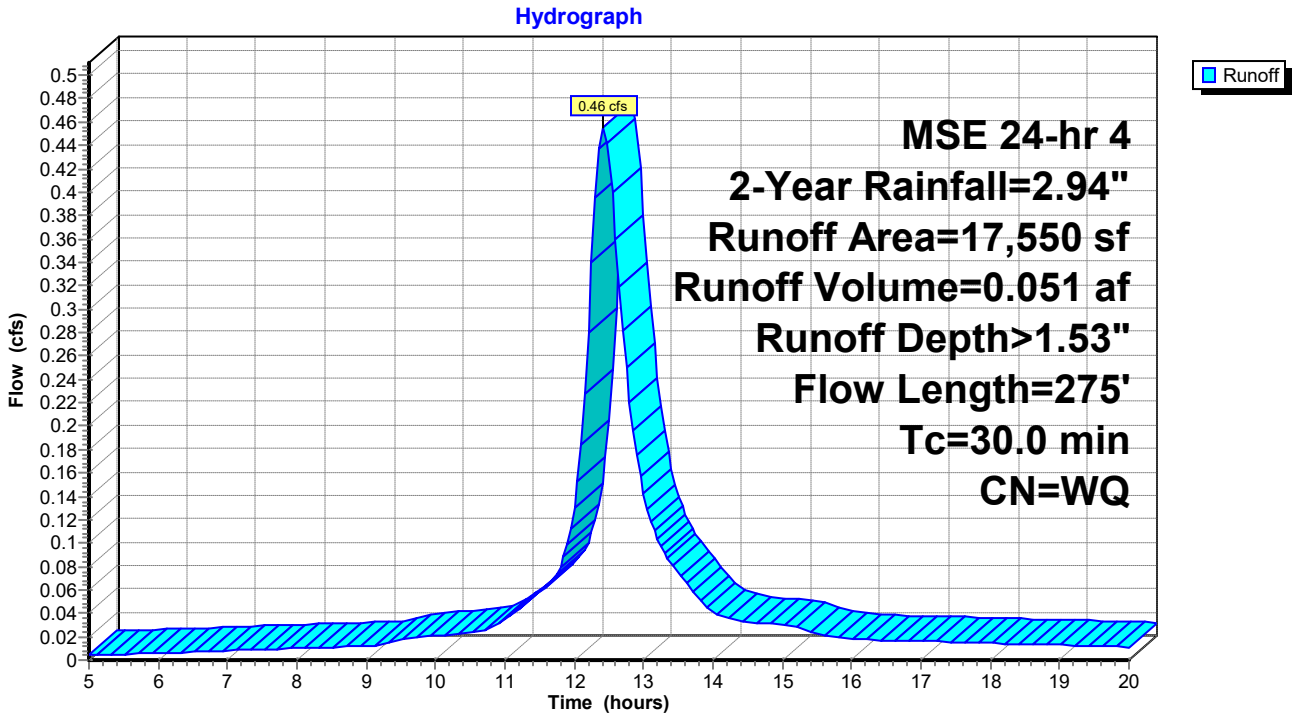
Runoff = 0.46 cfs @ 12.42 hrs, Volume= 0.051 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	550	61	NDS 14-15 lawn berm, HSG B, good
*	500	61	NDS 13 lawn
*	9,500	98	roof+drive run on 1825
*	7,000	61	lawn run on 1825
	17,550		Weighted Average
	8,050		45.87% Pervious Area
	9,500		54.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0	275		0.15		**Direct Entry, lawn run on 1825**

Subcatchment 5S: to NDS 13-14-15



Hydrograph for Subcatchment 5S: to NDS 13-14-15

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.01
5.75	0.17	0.00	0.01
6.00	0.18	0.00	0.01
6.25	0.19	0.00	0.01
6.50	0.21	0.00	0.01
6.75	0.22	0.00	0.01
7.00	0.23	0.00	0.01
7.25	0.25	0.00	0.01
7.50	0.26	0.00	0.01
7.75	0.28	0.00	0.01
8.00	0.29	0.00	0.01
8.25	0.31	0.00	0.01
8.50	0.32	0.00	0.01
8.75	0.34	0.00	0.01
9.00	0.36	0.00	0.01
9.25	0.38	0.00	0.01
9.50	0.41	0.00	0.02
9.75	0.44	0.00	0.02
10.00	0.47	0.00	0.02
10.25	0.50	0.00	0.02
10.50	0.53	0.00	0.02
10.75	0.57	0.00	0.03
11.00	0.64	0.01	0.04
11.25	0.71	0.02	0.05
11.50	0.80	0.04	0.06
11.75	0.96	0.09	0.07
12.00	1.38	0.25	0.13
12.25	1.98	0.59	**0.34**
12.50	2.14	0.70	**0.43**
12.75	2.23	0.75	0.25
13.00	2.30	0.81	0.14
13.25	2.37	0.85	0.10
13.50	2.41	0.88	0.07
13.75	2.44	0.90	0.06
14.00	2.47	0.92	0.04
14.25	2.50	0.94	0.03
14.50	2.53	0.96	0.03
14.75	2.56	0.98	0.03
15.00	2.58	1.00	0.03
15.25	2.60	1.01	0.03
15.50	2.62	1.03	0.02
15.75	2.63	1.04	0.02
16.00	2.65	1.05	0.02
16.25	2.66	1.06	0.02
16.50	2.68	1.07	0.02
16.75	2.69	1.08	0.02
17.00	2.71	1.09	0.02
17.25	2.72	1.10	0.02
17.50	2.73	1.11	0.02
17.75	2.75	1.12	0.02
18.00	2.76	1.13	0.01
18.25	2.77	1.14	0.01
18.50	2.78	1.15	0.01
18.75	2.79	1.16	0.01
19.00	2.81	1.17	0.01
19.25	2.82	1.17	0.01
19.50	2.83	1.18	0.01
19.75	2.84	1.19	0.01
20.00	**2.84**	**1.20**	0.01

Summary for Subcatchment 6S: untreated

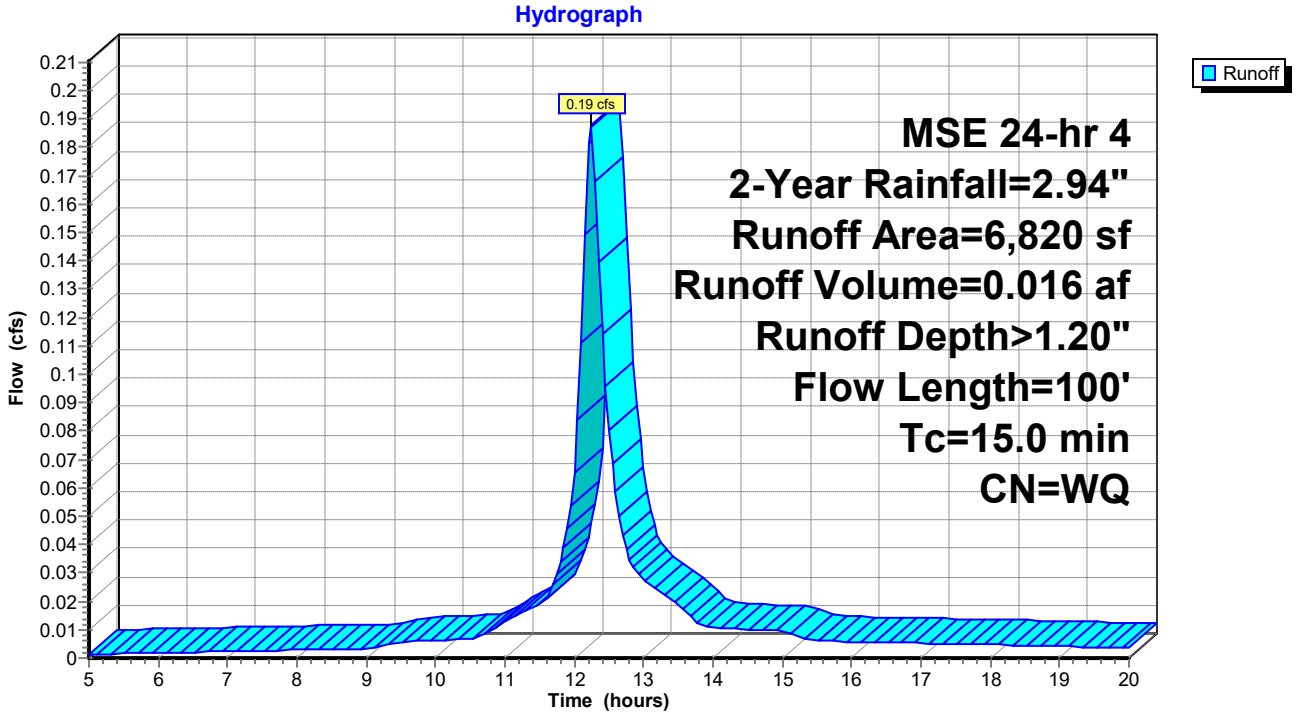
Runoff = 0.19 cfs @ 12.24 hrs, Volume= 0.016 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	2,400	98	S driveway
*	3,400	61	lawn, HSG B, good
*	750	61	bark mulch landscape
*	270	98	retain wall
	6,820		Weighted Average
	4,150		60.85% Pervious Area
	2,670		39.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100		0.11		**Direct Entry, landscape to street**

Subcatchment 6S: untreated



Hydrograph for Subcatchment 6S: untreated

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.00
5.75	0.17	0.00	0.00
6.00	0.18	0.00	0.00
6.25	0.19	0.00	0.00
6.50	0.21	0.00	0.00
6.75	0.22	0.00	0.00
7.00	0.23	0.00	0.00
7.25	0.25	0.00	0.00
7.50	0.26	0.00	0.00
7.75	0.28	0.00	0.00
8.00	0.29	0.00	0.00
8.25	0.31	0.00	0.00
8.50	0.32	0.00	0.00
8.75	0.34	0.00	0.00
9.00	0.36	0.00	0.00
9.25	0.38	0.00	0.00
9.50	0.41	0.00	0.01
9.75	0.44	0.00	0.01
10.00	0.47	0.00	0.01
10.25	0.50	0.00	0.01
10.50	0.53	0.00	0.01
10.75	0.57	0.00	0.01
11.00	0.64	0.00	0.01
11.25	0.71	0.00	0.02
11.50	0.80	0.00	0.02
11.75	0.96	0.02	0.03
12.00	1.38	0.12	0.07
12.25	1.98	0.37	**0.19**
12.50	2.14	0.45	0.08
12.75	2.23	0.50	0.04
13.00	2.30	0.54	0.03
13.25	2.37	0.57	0.02
13.50	2.41	0.60	0.02
13.75	2.44	0.62	0.01
14.00	2.47	0.64	0.01
14.25	2.50	0.65	0.01
14.50	2.53	0.67	0.01
14.75	2.56	0.68	0.01
15.00	2.58	0.70	0.01
15.25	2.60	0.71	0.01
15.50	2.62	0.72	0.01
15.75	2.63	0.73	0.01
16.00	2.65	0.74	0.01
16.25	2.66	0.75	0.01
16.50	2.68	0.76	0.01
16.75	2.69	0.77	0.01
17.00	2.71	0.77	0.01
17.25	2.72	0.78	0.01
17.50	2.73	0.79	0.01
17.75	2.75	0.80	0.00
18.00	2.76	0.81	0.00
18.25	2.77	0.81	0.00
18.50	2.78	0.82	0.00
18.75	2.79	0.83	0.00
19.00	2.81	0.84	0.00
19.25	2.82	0.84	0.00
19.50	2.83	0.85	0.00
19.75	2.84	0.85	0.00
20.00	**2.84**	**0.86**	0.00

Summary for Subcatchment 7S: NW 1/4 roof

[49] Hint: Tc<2dt may require smaller dt

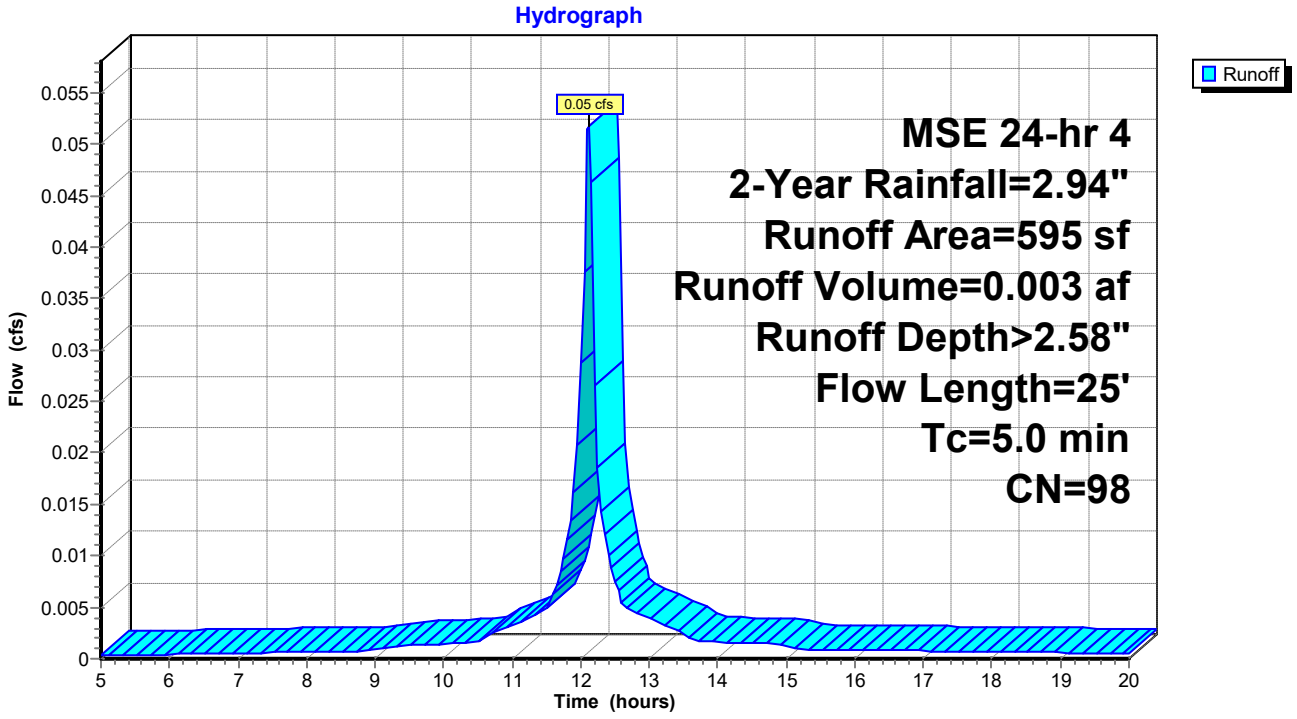
Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.003 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	595	98	NW 1/4 roof
	595		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, NW 1/4 roof**

Subcatchment 7S: NW 1/4 roof



Hydrograph for Subcatchment 7S: NW 1/4 roof

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.03	0.00
5.25	0.15	0.04	0.00
5.50	0.16	0.04	0.00
5.75	0.17	0.05	0.00
6.00	0.18	0.06	0.00
6.25	0.19	0.07	0.00
6.50	0.21	0.07	0.00
6.75	0.22	0.08	0.00
7.00	0.23	0.09	0.00
7.25	0.25	0.10	0.00
7.50	0.26	0.11	0.00
7.75	0.28	0.13	0.00
8.00	0.29	0.14	0.00
8.25	0.31	0.15	0.00
8.50	0.32	0.16	0.00
8.75	0.34	0.18	0.00
9.00	0.36	0.19	0.00
9.25	0.38	0.21	0.00
9.50	0.41	0.24	0.00
9.75	0.44	0.26	0.00
10.00	0.47	0.29	0.00
10.25	0.50	0.31	0.00
10.50	0.53	0.34	0.00
10.75	0.57	0.39	0.00
11.00	0.64	0.44	0.00
11.25	0.71	0.51	0.00
11.50	0.80	0.60	0.00
11.75	0.96	0.76	0.01
12.00	1.38	1.16	**0.03**
12.25	1.98	1.75	**0.02**
12.50	2.14	1.91	0.01
12.75	2.23	2.00	0.00
13.00	2.30	2.08	0.00
13.25	2.37	2.14	0.00
13.50	2.41	2.19	0.00
13.75	2.44	2.22	0.00
14.00	2.47	2.25	0.00
14.25	2.50	2.27	0.00
14.50	2.53	2.30	0.00
14.75	2.56	2.33	0.00
15.00	2.58	2.35	0.00
15.25	2.60	2.37	0.00
15.50	2.62	2.39	0.00
15.75	2.63	2.40	0.00
16.00	2.65	2.42	0.00
16.25	2.66	2.43	0.00
16.50	2.68	2.45	0.00
16.75	2.69	2.46	0.00
17.00	2.71	2.48	0.00
17.25	2.72	2.49	0.00
17.50	2.73	2.50	0.00
17.75	2.75	2.52	0.00
18.00	2.76	2.53	0.00
18.25	2.77	2.54	0.00
18.50	2.78	2.55	0.00
18.75	2.79	2.56	0.00
19.00	2.81	2.57	0.00
19.25	2.82	2.58	0.00
19.50	2.83	2.59	0.00
19.75	2.84	2.60	0.00
20.00	**2.84**	**2.61**	0.00

Summary for Subcatchment 8S: S 1/2 roof

[49] Hint: Tc<2dt may require smaller dt

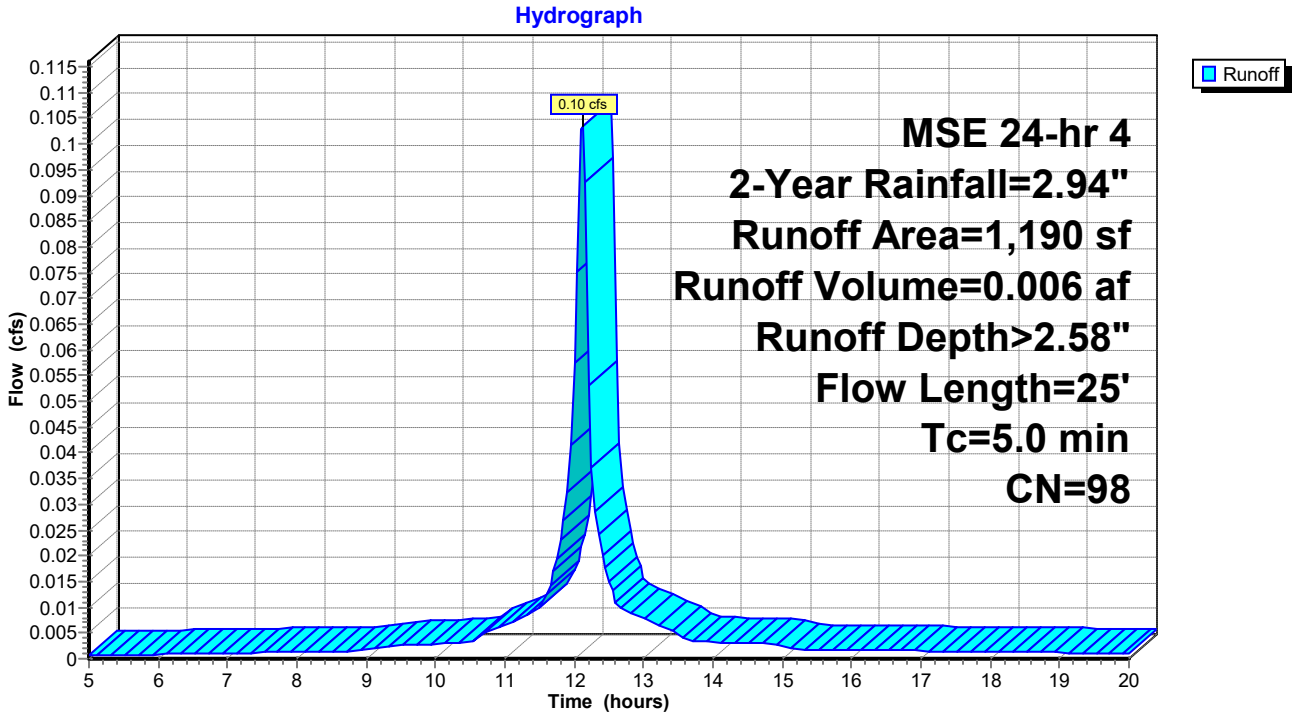
Runoff = 0.10 cfs @ 12.11 hrs, Volume= 0.006 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	1,190	98	S 1/2 roof
	1,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, S 1/2 roof**

Subcatchment 8S: S 1/2 roof



Hydrograph for Subcatchment 8S: S 1/2 roof

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.03	0.00
5.25	0.15	0.04	0.00
5.50	0.16	0.04	0.00
5.75	0.17	0.05	0.00
6.00	0.18	0.06	0.00
6.25	0.19	0.07	0.00
6.50	0.21	0.07	0.00
6.75	0.22	0.08	0.00
7.00	0.23	0.09	0.00
7.25	0.25	0.10	0.00
7.50	0.26	0.11	0.00
7.75	0.28	0.13	0.00
8.00	0.29	0.14	0.00
8.25	0.31	0.15	0.00
8.50	0.32	0.16	0.00
8.75	0.34	0.18	0.00
9.00	0.36	0.19	0.00
9.25	0.38	0.21	0.00
9.50	0.41	0.24	0.00
9.75	0.44	0.26	0.00
10.00	0.47	0.29	0.00
10.25	0.50	0.31	0.00
10.50	0.53	0.34	0.00
10.75	0.57	0.39	0.01
11.00	0.64	0.44	0.01
11.25	0.71	0.51	0.01
11.50	0.80	0.60	0.01
11.75	0.96	0.76	0.02
12.00	1.38	1.16	**0.06**
12.25	1.98	1.75	**0.04**
12.50	2.14	1.91	0.02
12.75	2.23	2.00	0.01
13.00	2.30	2.08	0.01
13.25	2.37	2.14	0.01
13.50	2.41	2.19	0.01
13.75	2.44	2.22	0.00
14.00	2.47	2.25	0.00
14.25	2.50	2.27	0.00
14.50	2.53	2.30	0.00
14.75	2.56	2.33	0.00
15.00	2.58	2.35	0.00
15.25	2.60	2.37	0.00
15.50	2.62	2.39	0.00
15.75	2.63	2.40	0.00
16.00	2.65	2.42	0.00
16.25	2.66	2.43	0.00
16.50	2.68	2.45	0.00
16.75	2.69	2.46	0.00
17.00	2.71	2.48	0.00
17.25	2.72	2.49	0.00
17.50	2.73	2.50	0.00
17.75	2.75	2.52	0.00
18.00	2.76	2.53	0.00
18.25	2.77	2.54	0.00
18.50	2.78	2.55	0.00
18.75	2.79	2.56	0.00
19.00	2.81	2.57	0.00
19.25	2.82	2.58	0.00
19.50	2.83	2.59	0.00
19.75	2.84	2.60	0.00
20.00	**2.84**	**2.61**	0.00

Summary for Reach 3R: S. 8" PVC

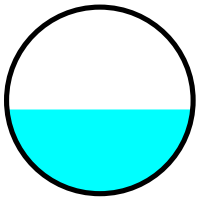
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.430 ac, 57.04% Impervious, Inflow Depth > 1.60" for 2-Year event
Inflow = 0.48 cfs @ 12.41 hrs, Volume= 0.057 af
Outflow = 0.47 cfs @ 12.42 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.7 min

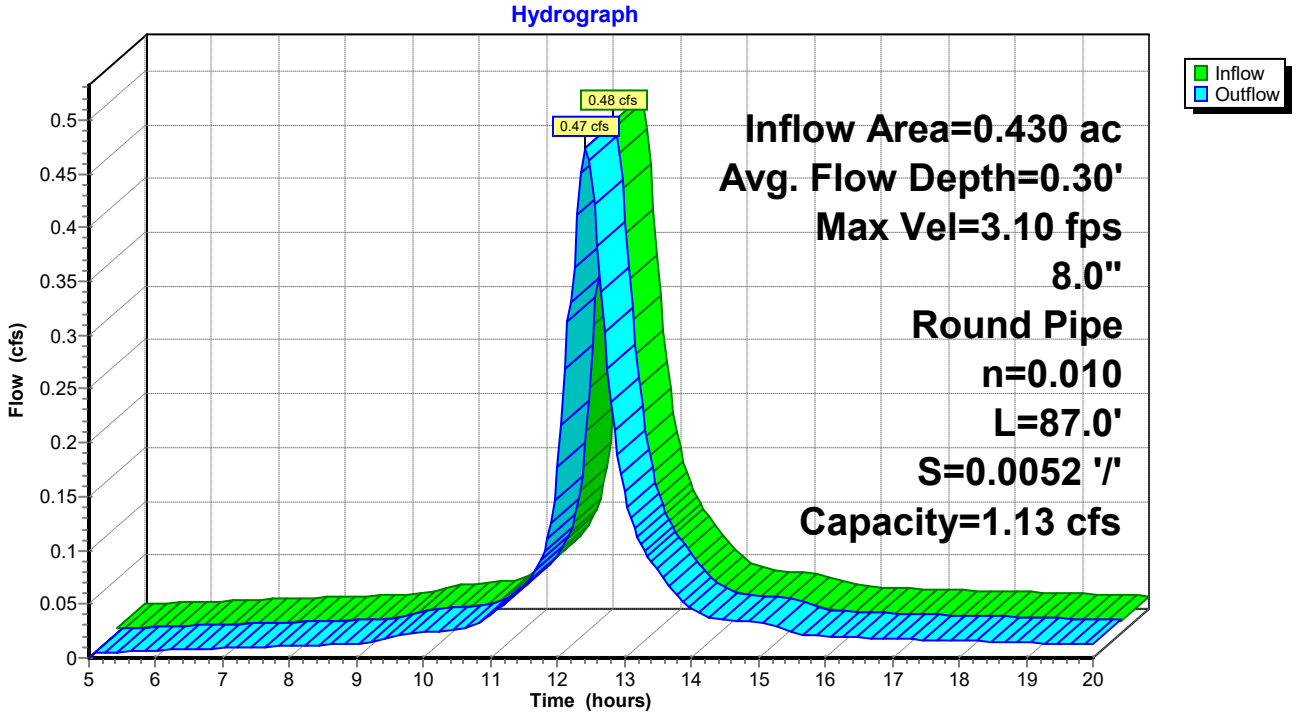
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.10 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 1.1 min

Peak Storage= 13 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.13 cfs

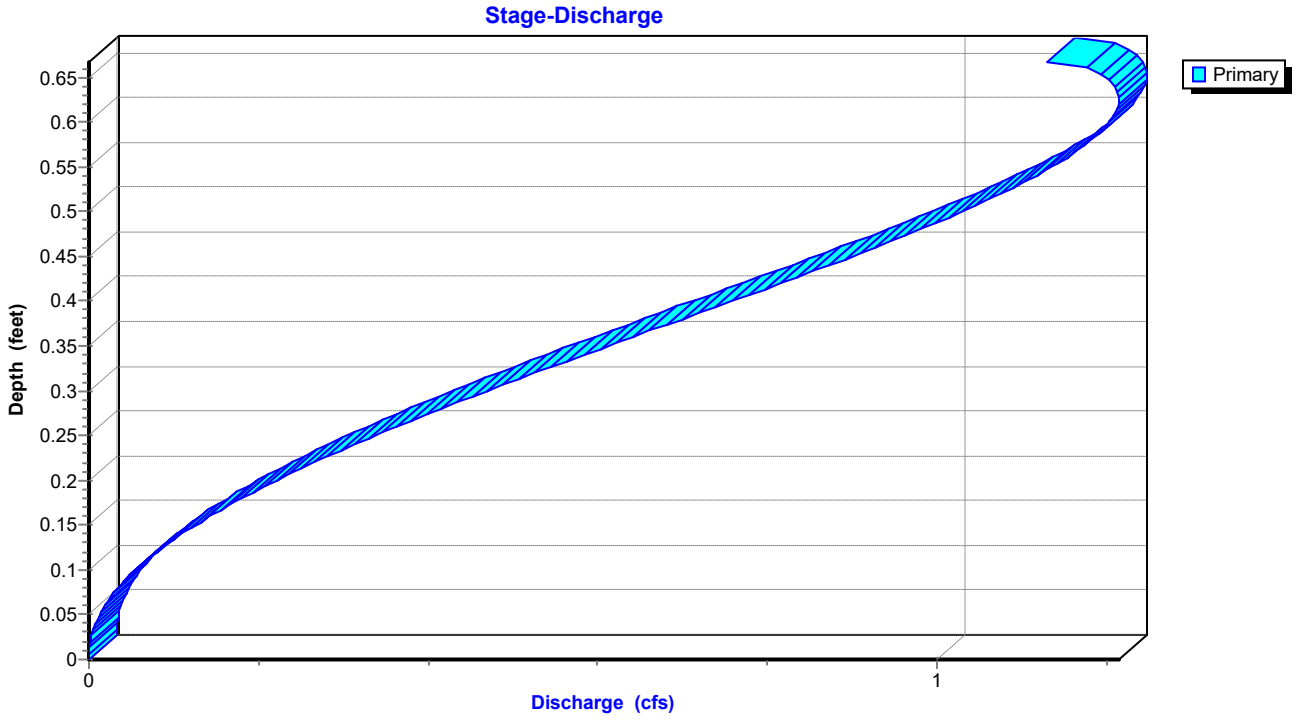
8.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 87.0' Slope= 0.0052 '/'
Inlet Invert= 676.38', Outlet Invert= 675.93'



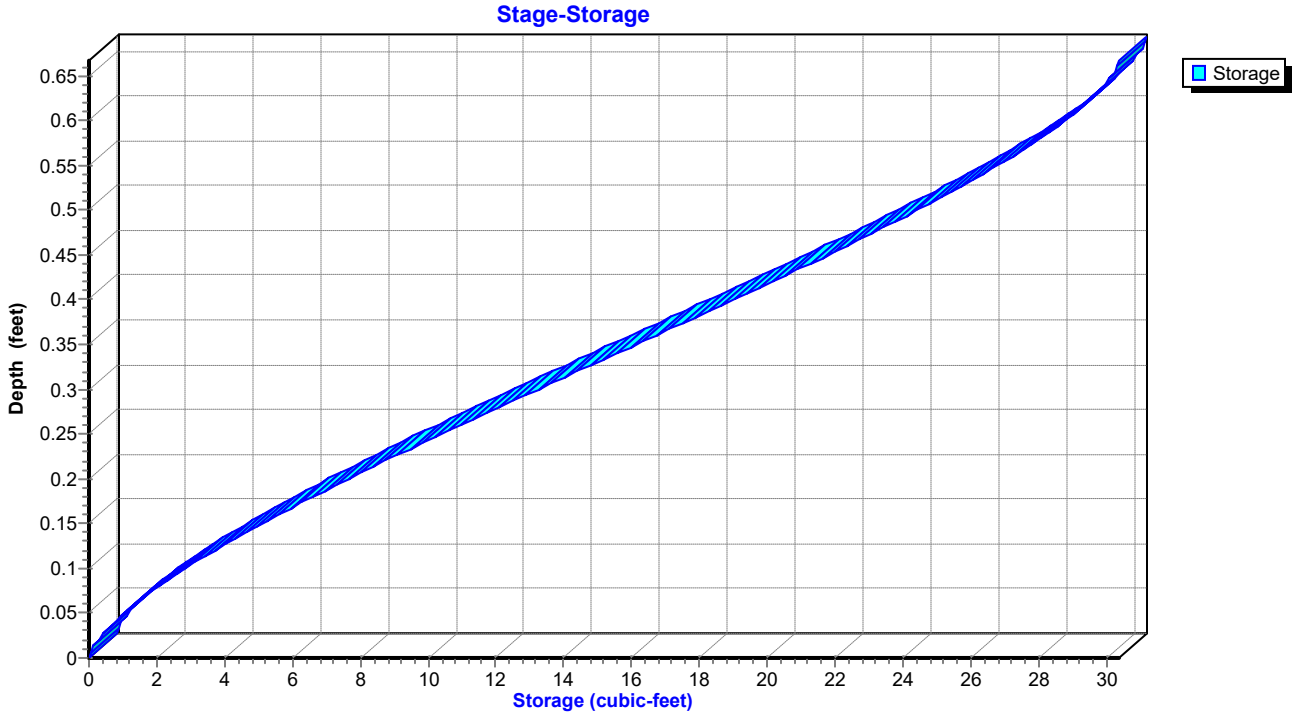
Reach 3R: S. 8" PVC



Reach 3R: S. 8" PVC



Reach 3R: S. 8" PVC



Hydrograph for Reach 3R: S. 8" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	676.38	0.00
5.50	0.01	1	676.41	0.01
6.00	0.01	1	676.42	0.01
6.50	0.01	1	676.42	0.01
7.00	0.01	1	676.42	0.01
7.50	0.01	1	676.42	0.01
8.00	0.01	1	676.43	0.01
8.50	0.01	1	676.43	0.01
9.00	0.01	1	676.43	0.01
9.50	0.02	1	676.44	0.02
10.00	0.02	2	676.45	0.02
10.50	0.03	2	676.45	0.03
11.00	0.04	2	676.47	0.04
11.50	0.07	3	676.49	0.07
12.00	**0.19**	**7**	**676.56**	**0.18**
12.50	**0.45**	**13**	**676.67**	**0.45**
13.00	0.15	6	676.54	0.15
13.50	0.08	4	676.50	0.08
14.00	0.04	2	676.47	0.05
14.50	0.04	2	676.46	0.04
15.00	0.03	2	676.46	0.03
15.50	0.02	2	676.45	0.02
16.00	0.02	1	676.44	0.02
16.50	0.02	1	676.44	0.02
17.00	0.02	1	676.44	0.02
17.50	0.02	1	676.44	0.02
18.00	0.02	1	676.44	0.02
18.50	0.02	1	676.43	0.02
19.00	0.01	1	676.43	0.01
19.50	0.01	1	676.43	0.01
20.00	0.01	1	676.43	0.01

Stage-Discharge for Reach 3R: S. 8" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
676.38	0.00	0.00
676.39	0.37	0.00
676.40	0.60	0.00
676.41	0.78	0.00
676.42	0.94	0.01
676.43	1.08	0.01
676.44	1.21	0.02
676.45	1.34	0.03
676.46	1.46	0.03
676.47	1.57	0.04
676.48	1.67	0.05
676.49	1.77	0.07
676.50	1.87	0.08
676.51	1.96	0.09
676.52	2.05	0.11
676.53	2.13	0.13
676.54	2.22	0.14
676.55	2.29	0.16
676.56	2.37	0.18
676.57	2.44	0.20
676.58	2.51	0.22
676.59	2.58	0.24
676.60	2.65	0.27
676.61	2.71	0.29
676.62	2.77	0.31
676.63	2.83	0.34
676.64	2.88	0.36
676.65	2.94	0.39
676.66	2.99	0.42
676.67	3.04	0.44
676.68	3.09	0.47
676.69	3.14	0.50
676.70	3.18	0.53
676.71	3.22	0.56
676.72	3.26	0.58
676.73	3.30	0.61
676.74	3.34	0.64
676.75	3.38	0.67
676.76	3.41	0.70
676.77	3.44	0.73
676.78	3.47	0.76
676.79	3.50	0.79
676.80	3.53	0.82
676.81	3.55	0.85
676.82	3.57	0.87
676.83	3.59	0.90
676.84	3.61	0.93
676.85	3.63	0.95
676.86	3.64	0.98
676.87	3.66	1.01
676.88	3.67	1.03
676.89	3.68	1.05
676.90	3.68	1.08
676.91	3.69	1.10
676.92	**3.69**	1.12
676.93	3.69	1.14
676.94	3.69	1.15
676.95	3.68	1.17
676.96	3.67	1.18
676.97	3.66	1.19
676.98	3.64	1.20
676.99	3.62	1.21
677.00	3.59	**1.21**
677.01	3.56	1.21
677.02	3.51	1.21
677.03	3.46	1.20
677.04	3.38	1.18
677.05	3.17	1.11

Stage-Area-Storage for Reach 3R: S. 8" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
676.38	0.0	0
676.39	0.0	0
676.40	0.0	0
676.41	0.0	0
676.42	0.0	1
676.43	0.0	1
676.44	0.0	1
676.45	0.0	2
676.46	0.0	2
676.47	0.0	2
676.48	0.0	3
676.49	0.0	3
676.50	0.0	4
676.51	0.0	4
676.52	0.1	5
676.53	0.1	5
676.54	0.1	6
676.55	0.1	6
676.56	0.1	7
676.57	0.1	7
676.58	0.1	8
676.59	0.1	8
676.60	0.1	9
676.61	0.1	9
676.62	0.1	10
676.63	0.1	10
676.64	0.1	11
676.65	0.1	12
676.66	0.1	12
676.67	0.1	13
676.68	0.2	13
676.69	0.2	14
676.70	0.2	14
676.71	0.2	15
676.72	0.2	16
676.73	0.2	16
676.74	0.2	17
676.75	0.2	17
676.76	0.2	18
676.77	0.2	18
676.78	0.2	19
676.79	0.2	20
676.80	0.2	20
676.81	0.2	21
676.82	0.2	21
676.83	0.3	22
676.84	0.3	22
676.85	0.3	23
676.86	0.3	23
676.87	0.3	24
676.88	0.3	24
676.89	0.3	25
676.90	0.3	25
676.91	0.3	26
676.92	0.3	26
676.93	0.3	27
676.94	0.3	27
676.95	0.3	28
676.96	0.3	28
676.97	0.3	28
676.98	0.3	29
676.99	0.3	29
677.00	0.3	29
677.01	0.3	30
677.02	0.3	30
677.03	0.3	30
677.04	0.3	30
677.05	**0.3**	**30**

Summary for Reach 4R: 6" PVC

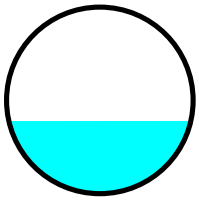
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.160 ac, 49.72% Impervious, Inflow Depth > 1.29" for 2-Year event
Inflow = 0.86 cfs @ 12.50 hrs, Volume= 0.125 af
Outflow = 0.86 cfs @ 12.50 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.3 min

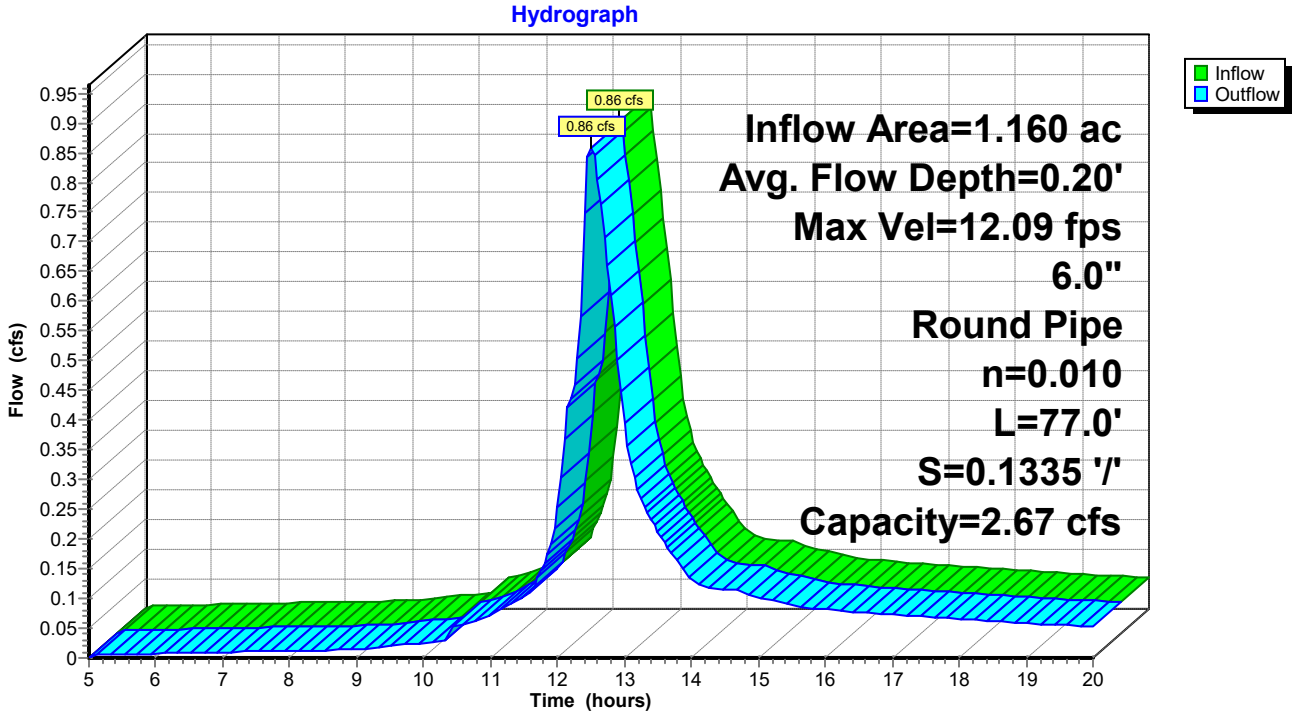
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.09 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.57 fps, Avg. Travel Time= 0.2 min

Peak Storage= 5 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 2.67 cfs

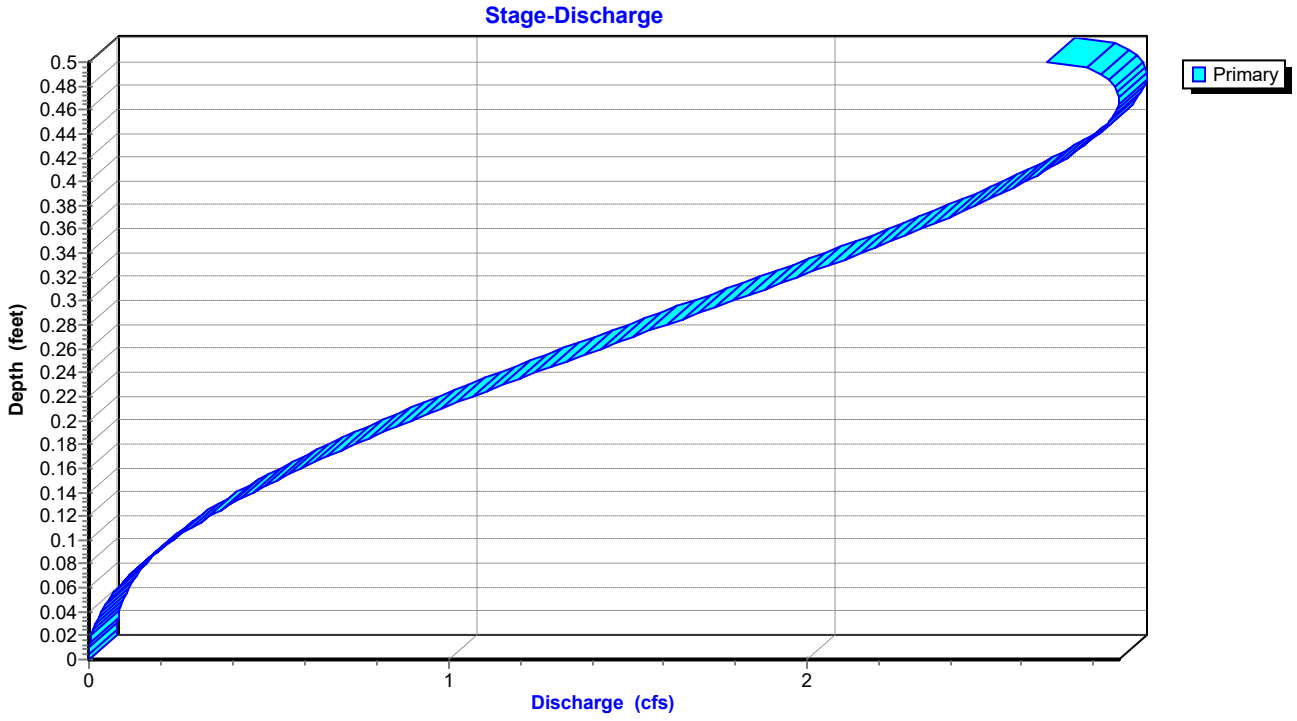
6.0" Round Pipe
n= 0.010
Length= 77.0' Slope= 0.1335 '/'
Inlet Invert= 668.80', Outlet Invert= 658.52'



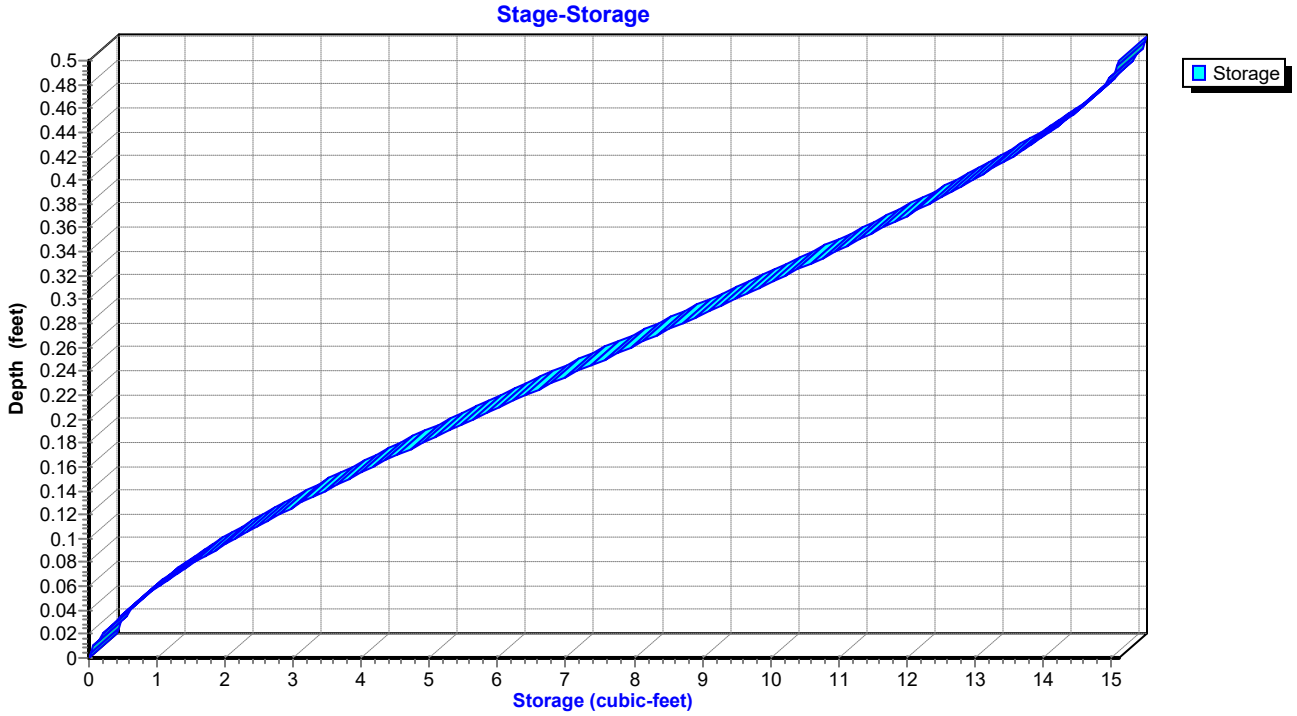
Reach 4R: 6" PVC



Reach 4R: 6" PVC



Reach 4R: 6" PVC



Hydrograph for Reach 4R: 6" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	668.80	0.00
5.50	0.01	0	668.82	0.01
6.00	0.01	0	668.82	0.01
6.50	0.01	0	668.82	0.01
7.00	0.01	0	668.82	0.01
7.50	0.01	0	668.82	0.01
8.00	0.01	0	668.82	0.01
8.50	0.01	0	668.83	0.01
9.00	0.01	0	668.83	0.01
9.50	0.02	0	668.83	0.02
10.00	0.03	0	668.83	0.03
10.50	0.05	1	668.85	0.05
11.00	0.07	1	668.86	0.07
11.50	0.10	1	668.87	0.10
12.00	0.26	2	668.90	0.25
12.50	**0.86**	**5**	**669.00**	**0.86**
13.00	0.39	3	668.93	0.40
13.50	0.21	2	668.90	0.21
14.00	0.13	1	668.88	0.13
14.50	0.12	1	668.87	0.12
15.00	0.10	1	668.87	0.10
15.50	0.09	1	668.86	0.09
16.00	0.08	1	668.86	0.08
16.50	0.08	1	668.86	0.08
17.00	0.07	1	668.86	0.07
17.50	0.07	1	668.86	0.07
18.00	0.07	1	668.85	0.07
18.50	0.06	1	668.85	0.06
19.00	0.06	1	668.85	0.06
19.50	0.06	1	668.85	0.06
20.00	0.05	1	668.85	0.05

Stage-Discharge for Reach 4R: 6" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
668.80	0.00	0.00
668.81	1.91	0.00
668.82	3.01	0.01
668.83	3.93	0.02
668.84	4.72	0.03
668.85	5.45	0.06
668.86	6.11	0.08
668.87	6.72	0.11
668.88	7.30	0.15
668.89	7.84	0.19
668.90	8.35	0.23
668.91	8.83	0.28
668.92	9.29	0.34
668.93	9.73	0.39
668.94	10.14	0.46
668.95	10.54	0.52
668.96	10.91	0.59
668.97	11.27	0.66
668.98	11.61	0.74
668.99	11.94	0.82
669.00	12.25	0.90
669.01	12.54	0.98
669.02	12.82	1.07
669.03	13.09	1.15
669.04	13.34	1.24
669.05	13.57	1.33
669.06	13.80	1.42
669.07	14.01	1.52
669.08	14.20	1.61
669.09	14.39	1.70
669.10	14.56	1.79
669.11	14.71	1.88
669.12	14.86	1.97
669.13	14.98	2.06
669.14	15.10	2.15
669.15	15.20	2.23
669.16	15.29	2.31
669.17	15.36	2.39
669.18	15.41	2.47
669.19	15.45	2.54
669.20	15.47	2.61
669.21	**15.47**	2.67
669.22	15.46	2.72
669.23	15.42	2.77
669.24	15.35	2.81
669.25	15.26	2.84
669.26	15.14	2.86
669.27	14.97	**2.87**
669.28	14.74	2.86
669.29	14.41	2.82
669.30	13.57	2.67

Stage-Area-Storage for Reach 4R: 6" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
668.80	0.0	0
668.81	0.0	0
668.82	0.0	0
668.83	0.0	0
668.84	0.0	1
668.85	0.0	1
668.86	0.0	1
668.87	0.0	1
668.88	0.0	2
668.89	0.0	2
668.90	0.0	2
668.91	0.0	2
668.92	0.0	3
668.93	0.0	3
668.94	0.0	3
668.95	0.0	4
668.96	0.1	4
668.97	0.1	5
668.98	0.1	5
668.99	0.1	5
669.00	0.1	6
669.01	0.1	6
669.02	0.1	6
669.03	0.1	7
669.04	0.1	7
669.05	0.1	8
669.06	0.1	8
669.07	0.1	8
669.08	0.1	9
669.09	0.1	9
669.10	0.1	9
669.11	0.1	10
669.12	0.1	10
669.13	0.1	11
669.14	0.1	11
669.15	0.1	11
669.16	0.2	12
669.17	0.2	12
669.18	0.2	12
669.19	0.2	13
669.20	0.2	13
669.21	0.2	13
669.22	0.2	14
669.23	0.2	14
669.24	0.2	14
669.25	0.2	14
669.26	0.2	15
669.27	0.2	15
669.28	0.2	15
669.29	0.2	15
669.30	**0.2**	**15**

Summary for Pond 3P: E biofilter LINED

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=7)

Inflow Area = 0.043 ac, 57.33% Impervious, Inflow Depth > 1.63" for 2-Year event
Inflow = 0.09 cfs @ 12.15 hrs, Volume= 0.006 af
Outflow = 0.03 cfs @ 12.38 hrs, Volume= 0.005 af, Atten= 69%, Lag= 13.8 min
Discarded = 0.00 cfs @ 12.38 hrs, Volume= 0.000 af
Primary = 0.03 cfs @ 12.38 hrs, Volume= 0.005 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 680.51' @ 12.38 hrs Surf.Area= 490 sf Storage= 121 cf

Plug-Flow detention time= 131.8 min calculated for 0.005 af (79% of inflow)
Center-of-Mass det. time= 78.8 min (827.9 - 749.1)

Volume	Invert	Avail.Storage	Storage Description
#1	678.00'	54 cf	**10.50'W x 15.50'L x 1.00'H sand invert** 163 cf Overall x 33.0% Voids
#2	679.00'	66 cf	**10.50'W x 15.50'L x 1.50'H media** 244 cf Overall x 27.0% Voids
#3	680.50'	128 cf	**10.50'W x 15.50'L x 0.60'H top media Z=3.0**
#4	681.10'	192 cf	**39.25'W x 19.25'L x 0.24'H NDS drain Z=3.0**
#5	681.34'	82 cf	**40.00'W x 20.00'L x 0.10'H weir overflow Z=3.0**
		521 cf	Total Available Storage

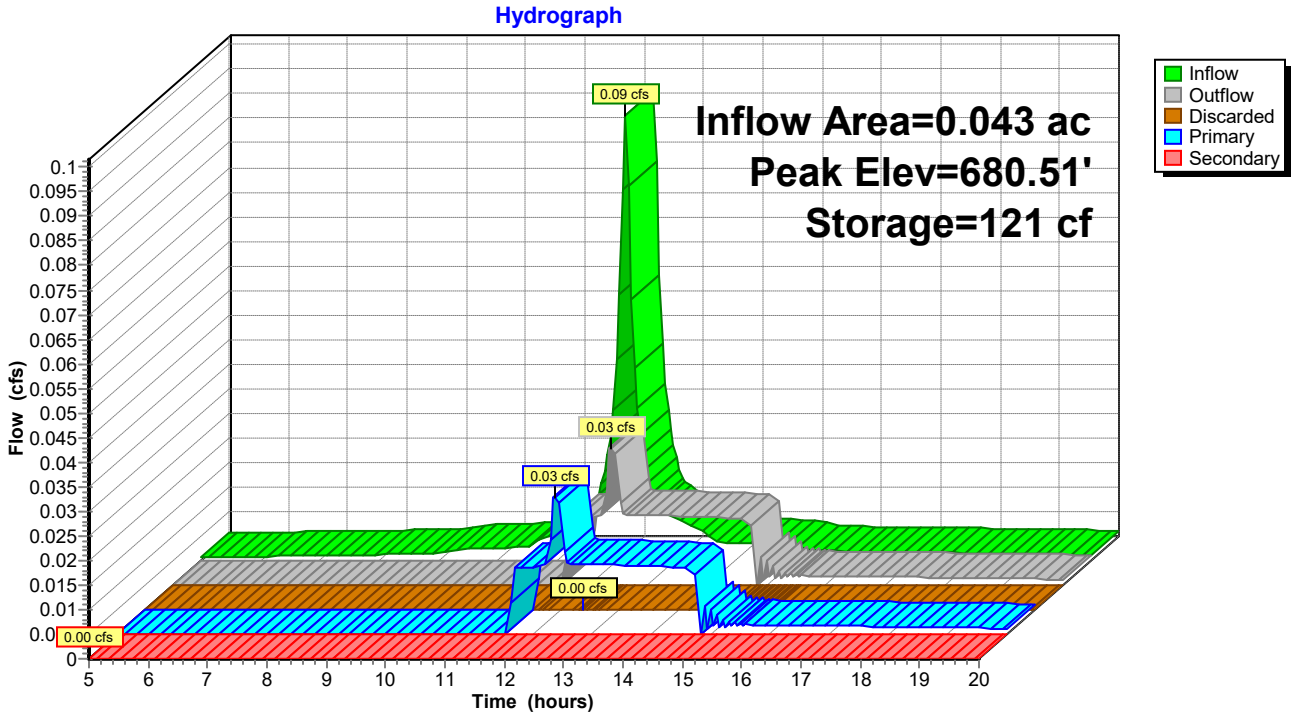
Device	Routing	Invert	Outlet Devices
#1	Secondary	681.34'	**6.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Primary	681.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	678.00'	**3.600 in/hr underdrain over Horizontal area above 678.00'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 163 sf Phase-In= 0.50'
#4	Discarded	678.00'	**0.001 in/hr Exfiltration over Horizontal area above 678.00'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 163 sf Phase-In= 0.50'

Discarded OutFlow Max=0.00 cfs @ 12.38 hrs HW=680.51' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

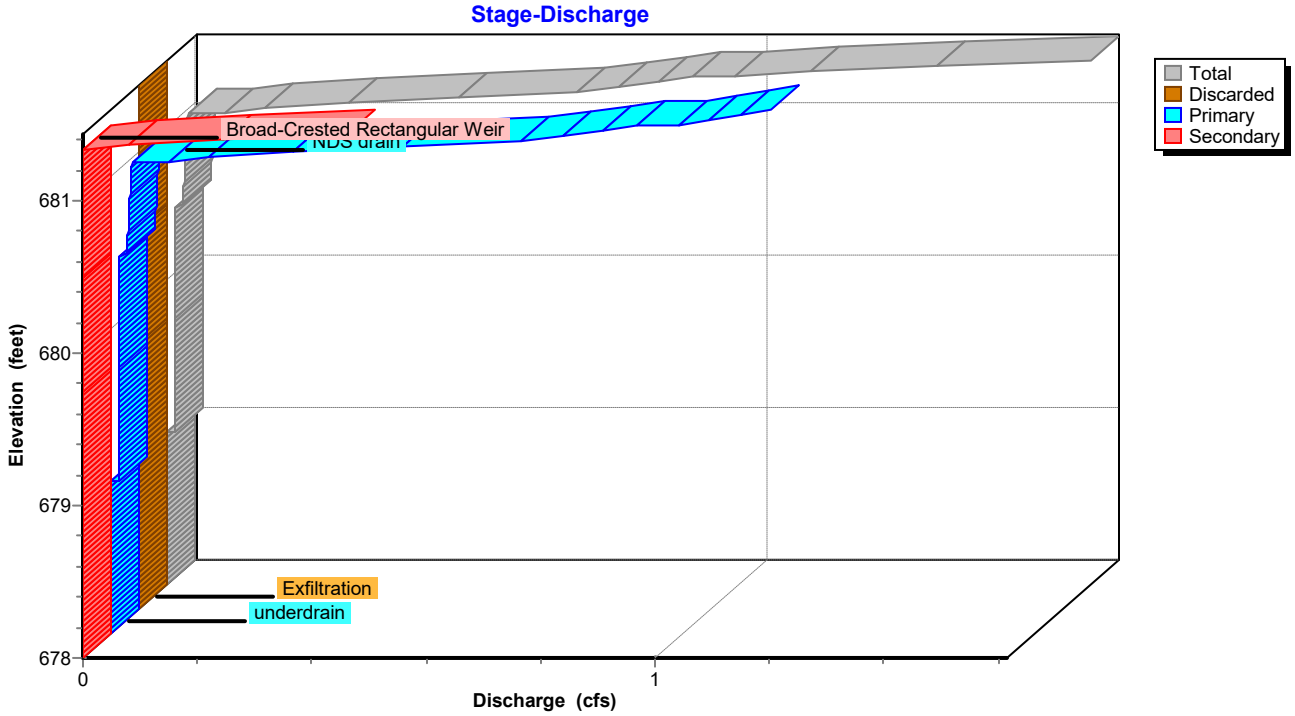
Primary OutFlow Max=0.03 cfs @ 12.38 hrs HW=680.51' (Free Discharge)
├**2=NDS drain** (Controls 0.00 cfs)
└**3=underdrain** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=678.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

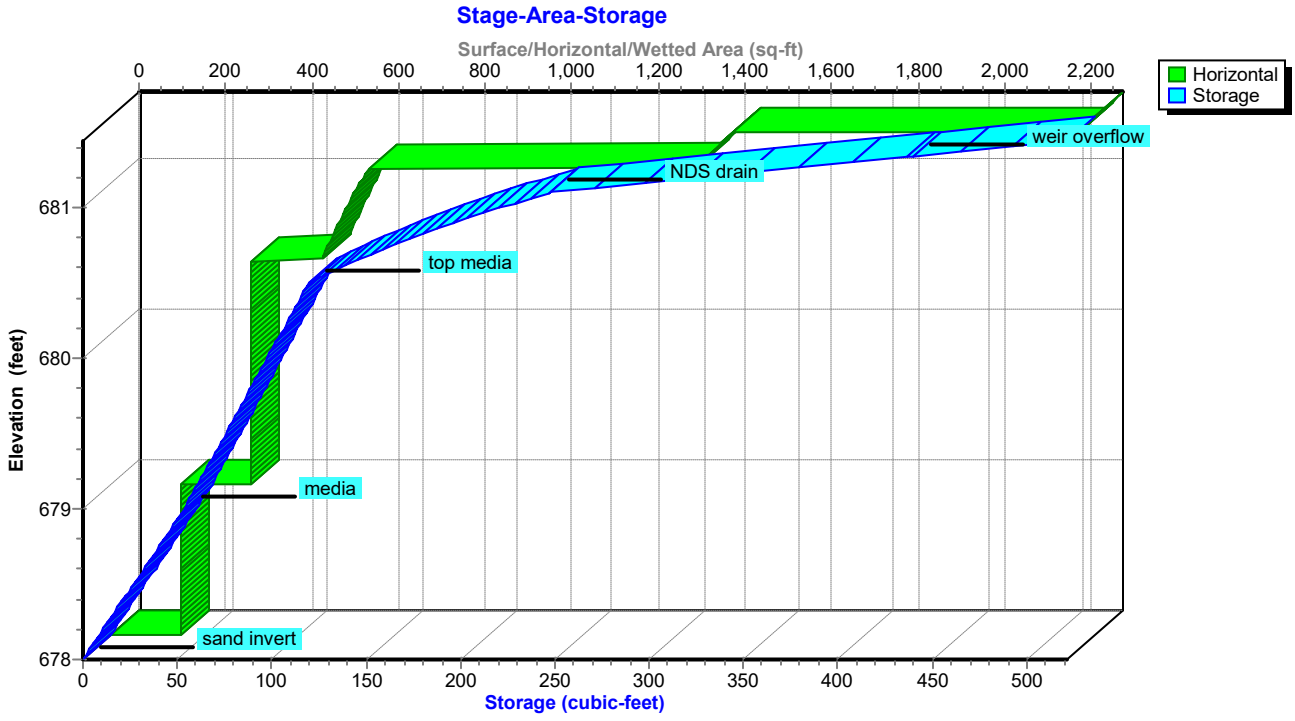
Pond 3P: E biofilter LINED



Pond 3P: E biofilter LINED



Pond 3P: E biofilter LINED



Hydrograph for Pond 3P: E biofilter LINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.00	0	678.00	0.00	0.00	0.00	**0.00**
5.50	0.00	1	678.02	0.00	0.00	0.00	0.00
6.00	0.00	3	678.05	0.00	0.00	0.00	0.00
6.50	0.00	4	678.08	0.00	0.00	0.00	0.00
7.00	0.00	6	678.11	0.00	0.00	0.00	0.00
7.50	0.00	8	678.15	0.00	0.00	0.00	0.00
8.00	0.00	10	678.19	0.00	0.00	0.00	0.00
8.50	0.00	13	678.24	0.00	0.00	0.00	0.00
9.00	0.00	15	678.28	0.00	0.00	0.00	0.00
9.50	0.00	19	678.35	0.00	0.00	0.00	0.00
10.00	0.00	24	678.44	0.00	0.00	0.00	0.00
10.50	0.00	28	678.53	0.00	0.00	0.00	0.00
11.00	0.01	36	678.67	0.00	0.00	0.00	0.00
11.50	0.01	49	678.91	0.00	0.00	0.00	0.00
12.00	**0.04**	**64**	**679.24**	**0.01**	**0.00**	**0.01**	0.00
12.50	**0.02**	**119**	**680.49**	**0.02**	**0.00**	**0.02**	0.00
13.00	0.01	113	680.35	0.01	0.00	0.01	0.00
13.50	0.01	101	680.07	0.01	0.00	0.01	0.00
14.00	0.00	83	679.66	0.01	0.00	0.01	0.00
14.50	0.00	64	679.24	0.01	0.00	0.01	0.00
15.00	0.00	54	679.00	0.00	0.00	0.00	0.00
15.50	0.00	54	679.00	0.00	0.00	0.00	0.00
16.00	0.00	54	679.00	0.00	0.00	0.00	0.00
16.50	0.00	54	679.00	0.00	0.00	0.00	0.00
17.00	0.00	54	679.00	0.00	0.00	0.00	0.00
17.50	0.00	54	679.00	0.00	0.00	0.00	0.00
18.00	0.00	54	679.00	0.00	0.00	0.00	0.00
18.50	0.00	54	679.00	0.00	0.00	0.00	0.00
19.00	0.00	54	679.00	0.00	0.00	0.00	0.00
19.50	0.00	54	679.00	0.00	0.00	0.00	0.00
20.00	0.00	54	679.00	0.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: E biofilter LINED

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
678.00	0.00	0.00	0.00	0.00
678.10	0.00	0.00	0.00	0.00
678.20	0.00	0.00	0.00	0.00
678.30	0.00	0.00	0.00	0.00
678.40	0.00	0.00	0.00	0.00
678.50	0.00	0.00	0.00	0.00
678.60	0.00	0.00	0.00	0.00
678.70	0.00	0.00	0.00	0.00
678.80	0.00	0.00	0.00	0.00
678.90	0.00	0.00	0.00	0.00
679.00	0.01	0.00	0.01	0.00
679.10	0.01	0.00	0.01	0.00
679.20	0.01	0.00	0.01	0.00
679.30	0.01	0.00	0.01	0.00
679.40	0.01	0.00	0.01	0.00
679.50	0.01	0.00	0.01	0.00
679.60	0.01	0.00	0.01	0.00
679.70	0.01	0.00	0.01	0.00
679.80	0.01	0.00	0.01	0.00
679.90	0.01	0.00	0.01	0.00
680.00	0.01	0.00	0.01	0.00
680.10	0.01	0.00	0.01	0.00
680.20	0.01	0.00	0.01	0.00
680.30	0.01	0.00	0.01	0.00
680.40	0.01	0.00	0.01	0.00
680.50	0.03	0.00	0.03	0.00
680.60	0.03	0.00	0.03	0.00
680.70	0.03	0.00	0.03	0.00
680.80	0.03	0.00	0.03	0.00
680.90	0.03	0.00	0.03	0.00
681.00	0.04	0.00	0.04	0.00
681.10	0.10	0.00	0.10	0.00
681.20	0.52	0.00	0.52	0.00
681.30	0.85	0.00	0.85	0.00
681.40	**1.31**	**0.00**	**1.09**	**0.22**

Stage-Area-Storage for Pond 3P: E biofilter LINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
678.00	163	0
678.05	163	3
678.10	163	5
678.15	163	8
678.20	163	11
678.25	163	13
678.30	163	16
678.35	163	19
678.40	163	21
678.45	163	24
678.50	163	27
678.55	163	30
678.60	163	32
678.65	163	35
678.70	163	38
678.75	163	40
678.80	163	43
678.85	163	46
678.90	163	48
678.95	163	51
679.00	326	54
679.05	326	56
679.10	326	58
679.15	326	60
679.20	326	62
679.25	326	65
679.30	326	67
679.35	326	69
679.40	326	71
679.45	326	73
679.50	326	76
679.55	326	78
679.60	326	80
679.65	326	82
679.70	326	84
679.75	326	87
679.80	326	89
679.85	326	91
679.90	326	93
679.95	326	95
680.00	326	98
680.05	326	100
680.10	326	102
680.15	326	104
680.20	326	106
680.25	326	109
680.30	326	111
680.35	326	113
680.40	326	115
680.45	326	117
680.50	488	120
680.55	496	128
680.60	504	137
680.65	512	146
680.70	521	155
680.75	530	165
680.80	538	176
680.85	547	187
680.90	556	198
680.95	566	210
681.00	575	222
681.05	585	235
681.10	1,350	248
681.15	1,368	286
681.20	1,386	325
681.25	1,404	365
681.30	1,422	406
681.35	2,240	448
681.40	**2,258**	**488**

Summary for Pond 5P: W biofillter UNLINED

[82] Warning: Early inflow requires earlier time span
[93] Warning: Storage range exceeded by 0.02'
[88] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area =	0.673 ac,	43.54% Impervious,	Inflow Depth >	1.30"	for 2-Year event
Inflow =	0.56 cfs @	12.41 hrs,	Volume=	0.073 af	
Outflow =	0.67 cfs @	12.41 hrs,	Volume=	0.063 af,	Atten= 0%, Lag= 0.3 min
Discarded =	0.00 cfs @	12.40 hrs,	Volume=	0.001 af	
Primary =	0.49 cfs @	12.40 hrs,	Volume=	0.060 af	
Secondary =	0.16 cfs @	12.41 hrs,	Volume=	0.002 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 676.18' @ 12.40 hrs Surf.Area= 2,824 sf Storage= 1,047 cf

Plug-Flow detention time= 135.3 min calculated for 0.062 af (86% of inflow)
Center-of-Mass det. time= 93.8 min (863.2 - 769.4)

Volume	Invert	Avail.Storage	Storage Description
#1	671.75'	107 cf	**8.30'W x 39.20'L x 1.00'H sand invert** 325 cf Overall x 33.0% Voids
#2	672.75'	176 cf	**8.30'W x 39.20'L x 2.00'H media** 651 cf Overall x 27.0% Voids
#3	674.75'	728 cf	**8.30'W x 39.20'L x 1.35'H top media Z=3.0**
#4	676.10'	27 cf	**12.30'W x 43.20'L x 0.05'H NDS drain Z=3.0**
#5	676.15'	8 cf	**18.00'W x 47.00'L x 0.01'H weir overflow Z=3.0**
		1,047 cf	Total Available Storage

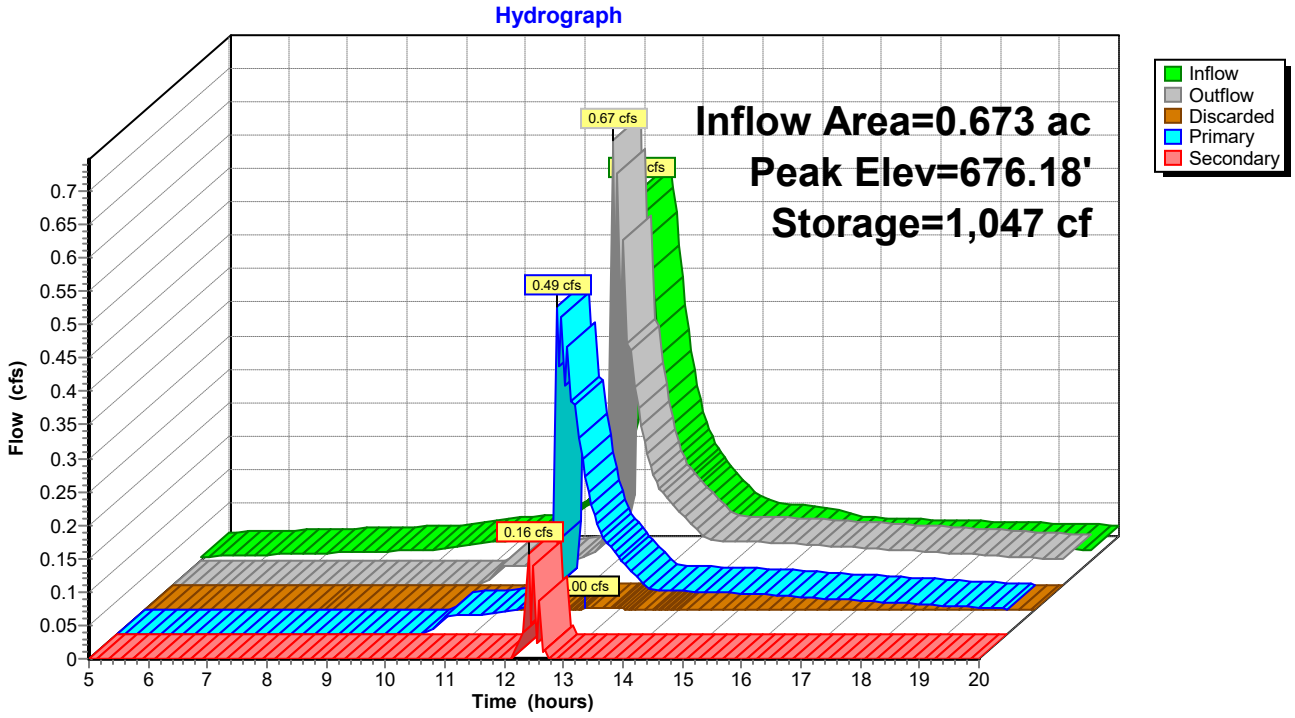
Device	Routing	Invert	Outlet Devices
#1	Secondary	676.15'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Primary	676.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	672.75'	**3.600 in/hr underdrain over Horizontal area above 672.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 651 sf Phase-In= 0.50'
#4	Discarded	671.75'	**0.030 in/hr Exfiltration over Horizontal area above 671.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 325 sf Phase-In= 0.50'

Discarded OutFlow Max=0.00 cfs @ 12.40 hrs HW=676.18' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

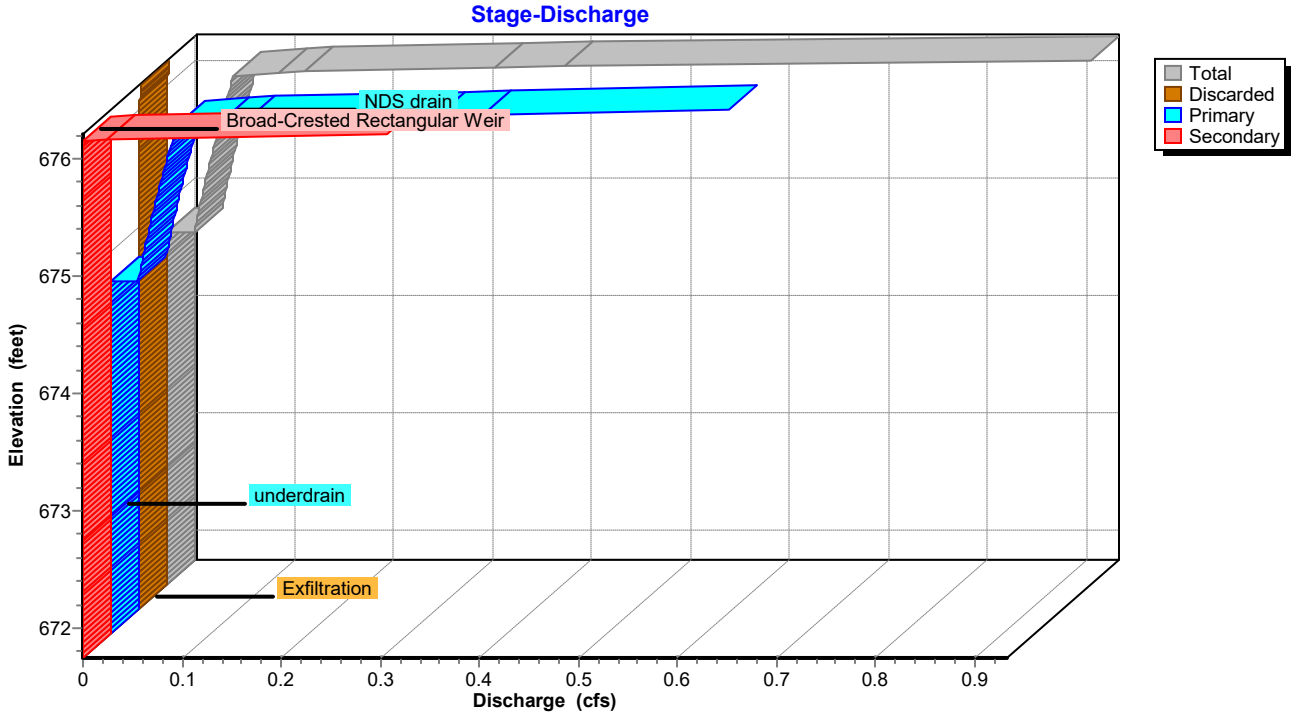
Primary OutFlow Max=0.48 cfs @ 12.40 hrs HW=676.18' (Free Discharge)
├**2=NDS drain** (Weir Controls 0.30 cfs @ 0.93 fps)
└**3=underdrain** (Controls 0.18 cfs)

Secondary OutFlow Max=0.12 cfs @ 12.41 hrs HW=676.18' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.12 cfs @ 0.41 fps)

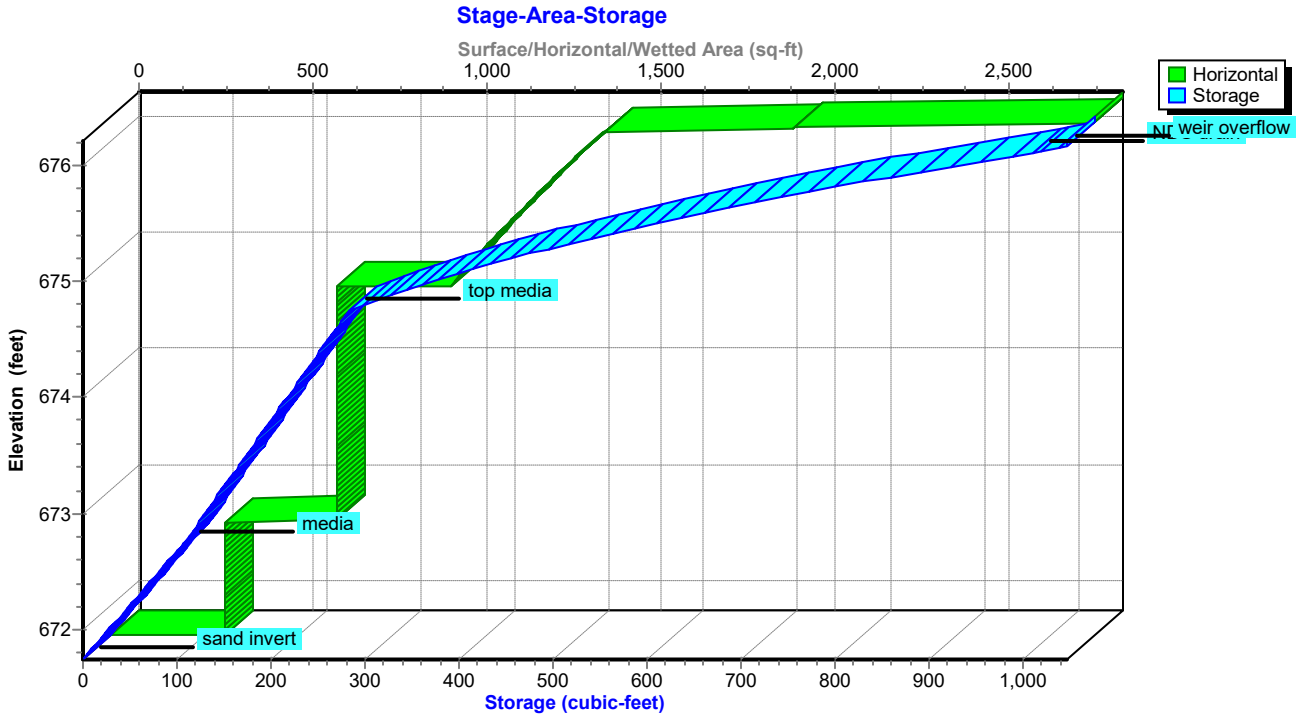
Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Hydrograph for Pond 5P: W biofillter UNLINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.01	1	671.75	0.00	0.00	0.00	0.00
5.50	0.01	12	671.86	0.00	0.00	0.00	0.00
6.00	0.01	27	672.00	0.00	0.00	0.00	0.00
6.50	0.01	43	672.15	0.00	0.00	0.00	0.00
7.00	0.01	62	672.33	0.00	0.00	0.00	0.00
7.50	0.01	83	672.52	0.00	0.00	0.00	0.00
8.00	0.01	107	672.74	0.00	0.00	0.00	0.00
8.50	0.01	132	673.03	0.00	0.00	0.00	0.00
9.00	0.02	160	673.34	0.00	0.00	0.00	0.00
9.50	0.02	195	673.75	0.00	0.00	0.00	0.00
10.00	0.03	243	674.29	0.00	0.00	0.00	0.00
10.50	0.03	285	674.75	0.03	0.00	0.03	0.00
11.00	0.05	306	674.82	0.03	0.00	0.03	0.00
11.50	0.08	370	674.99	0.03	0.00	0.03	0.00
12.00	**0.26**	**545**	**675.37**	**0.04**	**0.00**	**0.04**	**0.00**
12.50	**0.52**	**1,047**	**676.18**	**0.62**	**0.00**	**0.48**	**0.14**
13.00	0.19	1,025	676.13	0.20	0.00	0.19	0.00
13.50	0.10	1,011	676.10	0.11	0.00	0.11	0.00
14.00	0.06	990	676.07	0.07	0.00	0.07	0.00
14.50	0.05	964	676.04	0.07	0.00	0.06	0.00
15.00	0.04	929	675.99	0.06	0.00	0.06	0.00
15.50	0.03	885	675.93	0.06	0.00	0.06	0.00
16.00	0.03	828	675.85	0.06	0.00	0.06	0.00
16.50	0.03	770	675.76	0.06	0.00	0.06	0.00
17.00	0.02	716	675.68	0.05	0.00	0.05	0.00
17.50	0.02	664	675.59	0.05	0.00	0.05	0.00
18.00	0.02	615	675.50	0.05	0.00	0.05	0.00
18.50	0.02	568	675.42	0.05	0.00	0.05	0.00
19.00	0.02	523	675.33	0.04	0.00	0.04	0.00
19.50	0.02	481	675.25	0.04	0.00	0.04	0.00
20.00	0.02	441	675.16	0.04	0.00	0.04	0.00

Stage-Discharge for Pond 5P: W biofillter UNLINED

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
671.75	0.00	0.00	0.00	0.00
671.85	0.00	0.00	0.00	0.00
671.95	0.00	0.00	0.00	0.00
672.05	0.00	0.00	0.00	0.00
672.15	0.00	0.00	0.00	0.00
672.25	0.00	0.00	0.00	0.00
672.35	0.00	0.00	0.00	0.00
672.45	0.00	0.00	0.00	0.00
672.55	0.00	0.00	0.00	0.00
672.65	0.00	0.00	0.00	0.00
672.75	0.00	0.00	0.00	0.00
672.85	0.00	0.00	0.00	0.00
672.95	0.00	0.00	0.00	0.00
673.05	0.00	0.00	0.00	0.00
673.15	0.00	0.00	0.00	0.00
673.25	0.00	0.00	0.00	0.00
673.35	0.00	0.00	0.00	0.00
673.45	0.00	0.00	0.00	0.00
673.55	0.00	0.00	0.00	0.00
673.65	0.00	0.00	0.00	0.00
673.75	0.00	0.00	0.00	0.00
673.85	0.00	0.00	0.00	0.00
673.95	0.00	0.00	0.00	0.00
674.05	0.00	0.00	0.00	0.00
674.15	0.00	0.00	0.00	0.00
674.25	0.00	0.00	0.00	0.00
674.35	0.00	0.00	0.00	0.00
674.45	0.00	0.00	0.00	0.00
674.55	0.00	0.00	0.00	0.00
674.65	0.00	0.00	0.00	0.00
674.75	0.03	0.00	0.03	0.00
674.85	0.03	0.00	0.03	0.00
674.95	0.03	0.00	0.03	0.00
675.05	0.04	0.00	0.03	0.00
675.15	0.04	0.00	0.04	0.00
675.25	0.04	0.00	0.04	0.00
675.35	0.04	0.00	0.04	0.00
675.45	0.05	0.00	0.05	0.00
675.55	0.05	0.00	0.05	0.00
675.65	0.05	0.00	0.05	0.00
675.75	0.06	0.00	0.06	0.00
675.85	0.06	0.00	0.06	0.00
675.95	0.06	0.00	0.06	0.00
676.05	0.07	0.00	0.07	0.00
676.15	**0.33**	**0.00**	**0.33**	**0.00**

Stage-Area-Storage for Pond 5P: W biofillter UNLINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
671.75	325	0
671.80	325	5
671.85	325	11
671.90	325	16
671.95	325	21
672.00	325	27
672.05	325	32
672.10	325	38
672.15	325	43
672.20	325	48
672.25	325	54
672.30	325	59
672.35	325	64
672.40	325	70
672.45	325	75
672.50	325	81
672.55	325	86
672.60	325	91
672.65	325	97
672.70	325	102
672.75	651	107
672.80	651	112
672.85	651	116
672.90	651	121
672.95	651	125
673.00	651	129
673.05	651	134
673.10	651	138
673.15	651	143
673.20	651	147
673.25	651	151
673.30	651	156
673.35	651	160
673.40	651	164
673.45	651	169
673.50	651	173
673.55	651	178
673.60	651	182
673.65	651	186
673.70	651	191
673.75	651	195
673.80	651	200
673.85	651	204
673.90	651	208
673.95	651	213
674.00	651	217
674.05	651	222
674.10	651	226
674.15	651	230
674.20	651	235
674.25	651	239
674.30	651	244
674.35	651	248
674.40	651	252
674.45	651	257
674.50	651	261
674.55	651	265
674.60	651	270
674.65	651	274
674.70	651	279
674.75	976	283
674.80	990	300
674.85	1,005	317
674.90	1,020	335
674.95	1,035	354
675.00	1,050	373
675.05	1,065	394
675.10	1,080	415
675.15	1,096	437
675.20	1,112	459
675.25	1,128	483
675.30	1,144	507
675.35	1,160	532
675.40	1,177	558
675.45	1,193	585
675.50	1,210	612
675.55	1,227	641
675.60	1,244	670
675.65	1,262	700
675.70	1,279	731
675.75	1,297	763
675.80	1,315	796
675.85	1,333	829
675.90	1,351	864
675.95	1,370	899
676.00	1,389	936
676.05	1,407	973
676.10	1,958	1,012
676.15	**2,821**	**1,039**
676.20	**2,824**	**1,047**

Summary for Pond 7P: 48" UG storage

Inflow Area = 0.730 ac, 45.41% Impervious, Inflow Depth > 1.11" for 2-Year event
Inflow = 0.55 cfs @ 12.41 hrs, Volume= 0.068 af
Outflow = 0.42 cfs @ 12.58 hrs, Volume= 0.067 af, Atten= 23%, Lag= 10.1 min
Primary = 0.42 cfs @ 12.58 hrs, Volume= 0.067 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 670.69' @ 12.58 hrs Surf.Area= 160 sf Storage= 90 cf

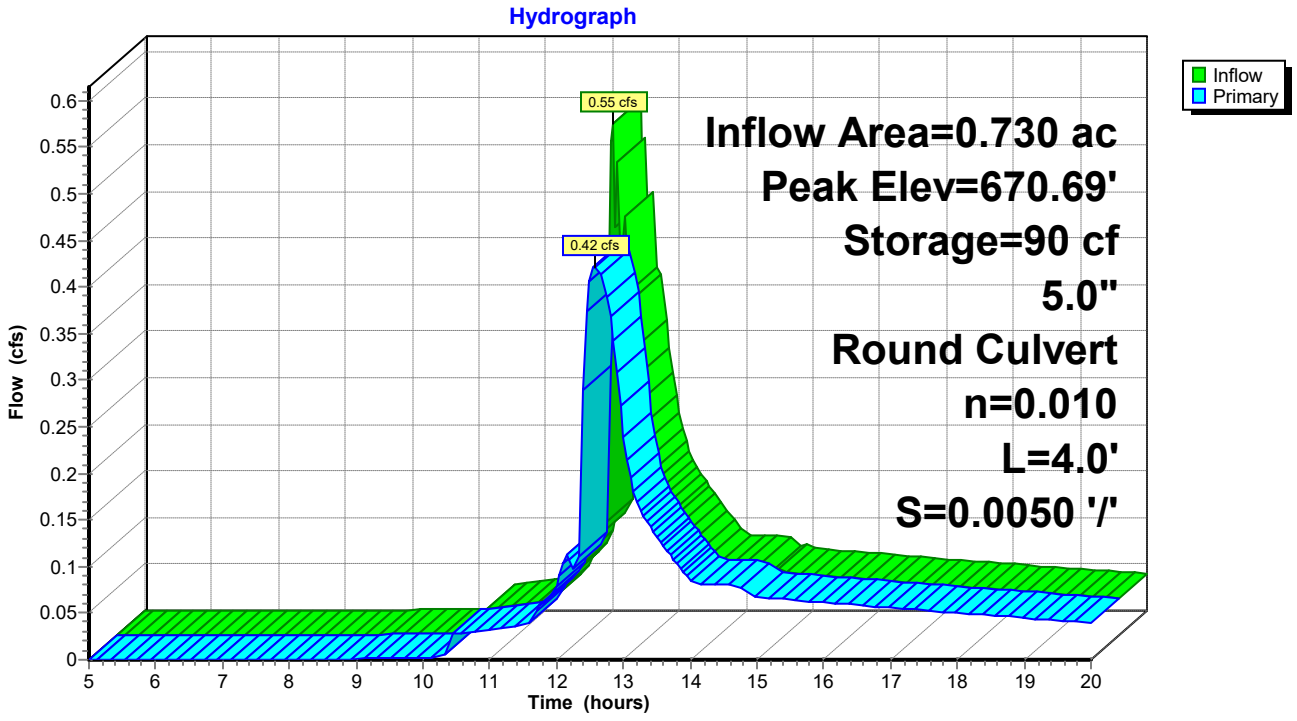
Plug-Flow detention time= 2.2 min calculated for 0.067 af (100% of inflow)
Center-of-Mass det. time= 1.7 min (860.4 - 858.6)

Volume	Invert	Avail.Storage	Storage Description
#1	669.82'	628 cf	**48.0" Round Pipe Storage** L= 50.0' S= 0.0026 '/'

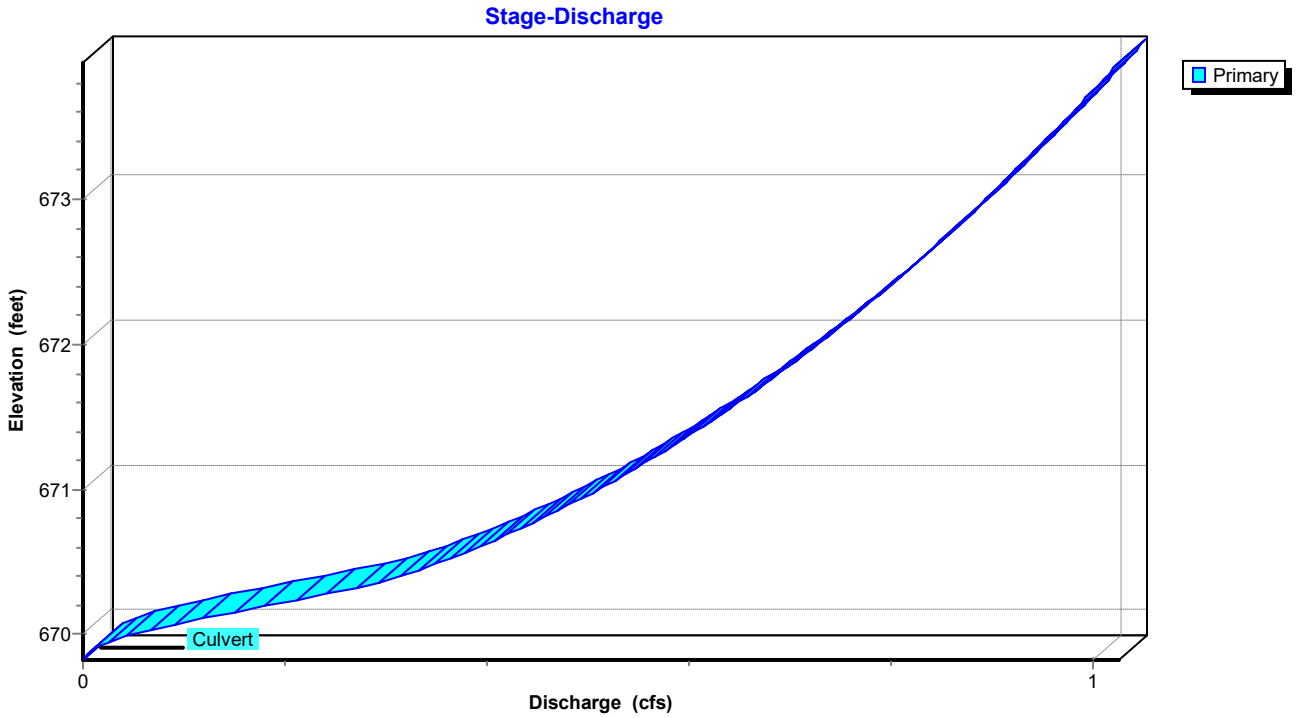
Device	Routing	Invert	Outlet Devices
#1	Primary	669.82'	**5.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 669.82' / 669.80' S= 0.0050 '/' Cc= 0.900 n= 0.010, Flow Area= 0.14 sf

Primary OutFlow Max=0.42 cfs @ 12.58 hrs HW=670.69' (Free Discharge)
1=Culvert (Inlet Controls 0.42 cfs @ 3.09 fps)

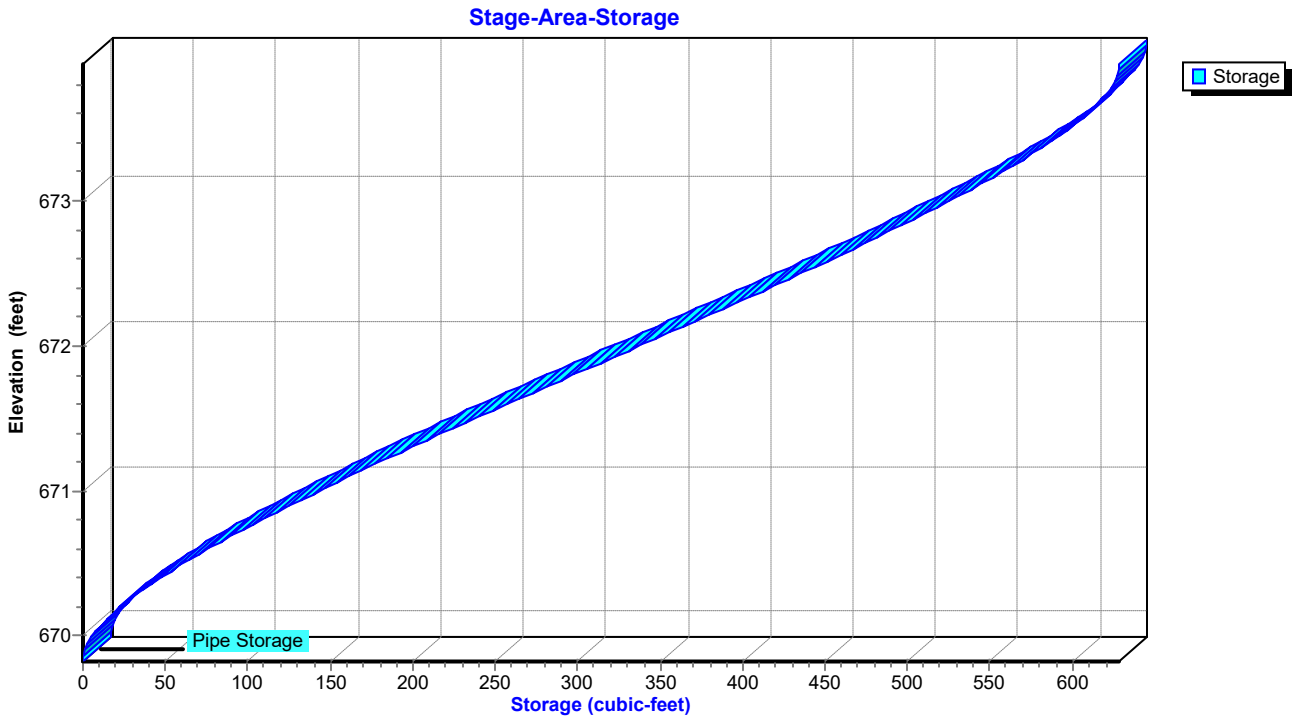
Pond 7P: 48" UG storage



Pond 7P: 48" UG storage



Pond 7P: 48" UG storage



Hydrograph for Pond 7P: 48" UG storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
5.00	0.00	0	669.82	0.00
5.50	0.00	0	669.82	0.00
6.00	0.00	0	669.83	0.00
6.50	0.00	0	669.83	0.00
7.00	0.00	0	669.83	0.00
7.50	0.00	0	669.83	0.00
8.00	0.00	0	669.83	0.00
8.50	0.00	0	669.83	0.00
9.00	0.00	0	669.83	0.00
9.50	0.00	0	669.84	0.00
10.00	0.00	0	669.84	0.00
10.50	0.03	2	669.95	0.03
11.00	0.03	3	669.96	0.03
11.50	0.04	4	669.97	0.04
12.00	**0.09**	9	670.05	0.08
12.50	**0.51**	**83**	**670.64**	**0.41**
13.00	0.21	**31**	**670.27**	**0.24**
13.50	0.13	16	670.13	0.13
14.00	0.08	10	670.06	0.09
14.50	0.08	9	670.05	0.08
15.00	0.07	7	670.03	0.07
15.50	0.06	7	670.02	0.06
16.00	0.06	7	670.02	0.06
16.50	0.06	6	670.01	0.06
17.00	0.06	6	670.01	0.06
17.50	0.05	5	670.00	0.05
18.00	0.05	5	670.00	0.05
18.50	0.05	5	669.99	0.05
19.00	0.04	4	669.99	0.04
19.50	0.04	4	669.98	0.04
20.00	0.04	4	669.97	0.04

Stage-Discharge for Pond 7P: 48" UG storage

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
669.82	0.00	672.37	0.79
669.87	0.00	672.42	0.80
669.92	0.02	672.47	0.81
669.97	0.04	672.52	0.82
670.02	0.06	672.57	0.83
670.07	0.09	672.62	0.83
670.12	0.13	672.67	0.84
670.17	0.16	672.72	0.85
670.22	0.20	672.77	0.86
670.27	0.24	672.82	0.87
670.32	0.27	672.87	0.87
670.37	0.30	672.92	0.88
670.42	0.32	672.97	0.89
670.47	0.34	673.02	0.90
670.52	0.36	673.07	0.90
670.57	0.38	673.12	0.91
670.62	0.40	673.17	0.92
670.67	0.42	673.22	0.93
670.72	0.43	673.27	0.93
670.77	0.45	673.32	0.94
670.82	0.46	673.37	0.95
670.87	0.48	673.42	0.95
670.92	0.49	673.47	0.96
670.97	0.50	673.52	0.97
671.02	0.52	673.57	0.98
671.07	0.53	673.62	0.98
671.12	0.54	673.67	0.99
671.17	0.55	673.72	1.00
671.22	0.57	673.77	1.00
671.27	0.58	673.82	1.01
671.32	0.59	673.87	1.02
671.37	0.60	673.92	**1.02**
671.42	0.61		
671.47	0.62		
671.52	0.63		
671.57	0.64		
671.62	0.65		
671.67	0.66		
671.72	0.67		
671.77	0.68		
671.82	0.69		
671.87	0.70		
671.92	0.71		
671.97	0.72		
672.02	0.73		
672.07	0.74		
672.12	0.75		
672.17	0.76		
672.22	0.77		
672.27	0.78		
672.32	0.78		

Stage-Area-Storage for Pond 7P: 48" UG storage

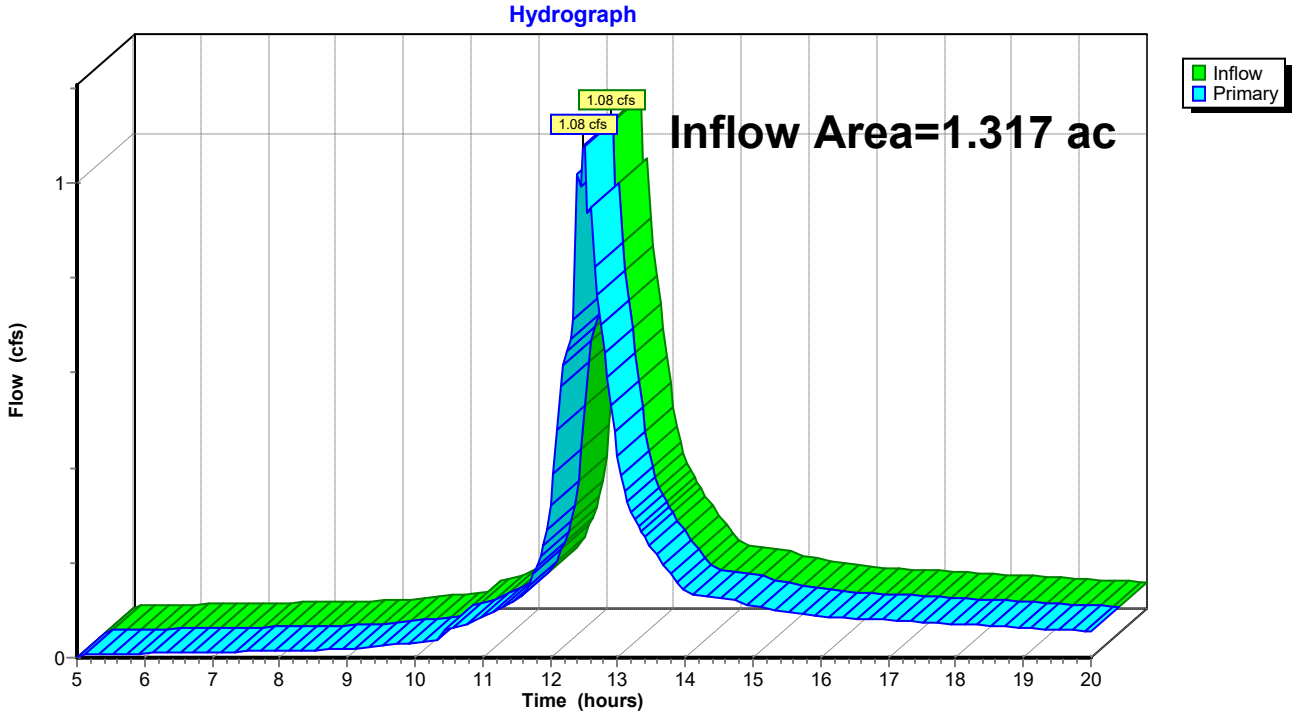
Elevation (feet)	Storage (cubic-feet)
669.82	0
669.87	0
669.92	1
669.97	4
670.02	7
670.07	11
670.12	15
670.17	20
670.22	25
670.27	31
670.32	37
670.37	43
670.42	50
670.47	57
670.52	64
670.57	72
670.62	79
670.67	87
670.72	95
670.77	103
670.82	112
670.87	120
670.92	129
670.97	138
671.02	147
671.07	156
671.12	165
671.17	174
671.22	184
671.27	193
671.32	203
671.37	212
671.42	222
671.47	232
671.52	242
671.57	251
671.62	261
671.67	271
671.72	281
671.77	291
671.82	301
671.87	311
671.92	321
671.97	331
672.02	341
672.07	351
672.12	361
672.17	371
672.22	381
672.27	391
672.32	400
672.37	410
672.42	420
672.47	429
672.52	439
672.57	448
672.62	458
672.67	467
672.72	476
672.77	485
672.82	494
672.87	503
672.92	511
672.97	520
673.02	528
673.07	536
673.12	544
673.17	552
673.22	560
673.27	567
673.32	574
673.37	581
673.42	587
673.47	594
673.52	600
673.57	605
673.62	610
673.67	615
673.72	619
673.77	623
673.82	626
673.87	628
673.92	**628**

Summary for Link 2L: (new Link)

Inflow Area = 1.317 ac, 48.47% Impervious, Inflow Depth > 1.30" for 2-Year event
Inflow = 1.08 cfs @ 12.49 hrs, Volume= 0.142 af
Primary = 1.08 cfs @ 12.49 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: (new Link)



Hydrograph for Link 2L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	17.75	0.07	0.00	0.07
5.25	0.01	0.00	0.01	18.00	0.07	0.00	0.07
5.50	0.01	0.00	0.01	18.25	0.07	0.00	0.07
5.75	0.01	0.00	0.01	18.50	0.07	0.00	0.07
6.00	0.01	0.00	0.01	18.75	0.07	0.00	0.07
6.25	0.01	0.00	0.01	19.00	0.06	0.00	0.06
6.50	0.01	0.00	0.01	19.25	0.06	0.00	0.06
6.75	0.01	0.00	0.01	19.50	0.06	0.00	0.06
7.00	0.01	0.00	0.01	19.75	0.06	0.00	0.06
7.25	0.01	0.00	0.01	20.00	0.06	0.00	0.06
7.50	0.01	0.00	0.01				
7.75	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.25	0.02	0.00	0.02				
8.50	0.02	0.00	0.02				
8.75	0.02	0.00	0.02				
9.00	0.02	0.00	0.02				
9.25	0.02	0.00	0.02				
9.50	0.03	0.00	0.03				
9.75	0.03	0.00	0.03				
10.00	0.03	0.00	0.03				
10.25	0.03	0.00	0.03				
10.50	0.06	0.00	0.06				
10.75	0.07	0.00	0.07				
11.00	0.08	0.00	0.08				
11.25	0.10	0.00	0.10				
11.50	0.12	0.00	0.12				
11.75	0.18	0.00	0.18				
12.00	0.32	0.00	0.32				
12.25	0.65	0.00	0.65				
12.50	**1.08**	0.00	**1.08**				
12.75	0.70	0.00	0.70				
13.00	0.42	0.00	0.42				
13.25	0.29	0.00	0.29				
13.50	0.23	0.00	0.23				
13.75	0.18	0.00	0.18				
14.00	0.14	0.00	0.14				
14.25	0.13	0.00	0.13				
14.50	0.13	0.00	0.13				
14.75	0.12	0.00	0.12				
15.00	0.11	0.00	0.11				
15.25	0.10	0.00	0.10				
15.50	0.10	0.00	0.10				
15.75	0.09	0.00	0.09				
16.00	0.09	0.00	0.09				
16.25	0.09	0.00	0.09				
16.50	0.08	0.00	0.08				
16.75	0.08	0.00	0.08				
17.00	0.08	0.00	0.08				
17.25	0.08	0.00	0.08				
17.50	0.07	0.00	0.07				

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: To E Biofilter Runoff Area=1,875 sf 57.33% Impervious Runoff Depth>2.62"
Flow Length=25' Tc=8.0 min CN=WQ Runoff=0.15 cfs 0.009 af

Subcatchment 3S: to curb inlet Runoff Area=24,840 sf 40.58% Impervious Runoff Depth>2.10"
Flow Length=300' Tc=30.0 min CN=WQ Runoff=0.90 cfs 0.100 af

Subcatchment 4S: to W biofilter Runoff Area=4,490 sf 59.91% Impervious Runoff Depth>2.70"
Flow Length=140' Tc=6.0 min CN=WQ Runoff=0.39 cfs 0.023 af

Subcatchment 5S: to NDS 13-14-15 Runoff Area=17,550 sf 54.13% Impervious Runoff Depth>2.50"
Flow Length=275' Tc=30.0 min CN=WQ Runoff=0.76 cfs 0.084 af

Subcatchment 6S: untreated Runoff Area=6,820 sf 39.15% Impervious Runoff Depth>2.06"
Flow Length=100' Tc=15.0 min CN=WQ Runoff=0.34 cfs 0.027 af

Subcatchment 7S: NW 1/4 roof Runoff Area=595 sf 100.00% Impervious Runoff Depth>3.88"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.08 cfs 0.004 af

Subcatchment 8S: S 1/2 roof Runoff Area=1,190 sf 100.00% Impervious Runoff Depth>3.88"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.15 cfs 0.009 af

Reach 3R: S. 8" PVC Avg. Flow Depth=0.41' Max Vel=3.50 fps Inflow=0.79 cfs 0.093 af
8.0" Round Pipe n=0.010 L=87.0' S=0.0052 '/' Capacity=1.13 cfs Outflow=0.78 cfs 0.093 af

Reach 4R: 6" PVC Avg. Flow Depth=0.25' Max Vel=13.65 fps Inflow=1.36 cfs 0.198 af
6.0" Round Pipe n=0.010 L=77.0' S=0.1335 '/' Capacity=2.67 cfs Outflow=1.36 cfs 0.198 af

Pond 3P: E biofilter LINED Peak Elev=680.81' Storage=178 cf Inflow=0.15 cfs 0.009 af
Discarded=0.00 cfs 0.000 af Primary=0.03 cfs 0.008 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.008 af

Pond 5P: W biofillter UNLINED Peak Elev=676.23' Storage=1,047 cf Inflow=0.98 cfs 0.123 af
Discarded=0.00 cfs 0.001 af Primary=0.74 cfs 0.093 af Secondary=0.57 cfs 0.014 af Outflow=1.31 cfs 0.108 af

Pond 7P: 48" UG storage Peak Elev=671.38' Storage=214 cf Inflow=0.79 cfs 0.106 af
5.0" Round Culvert n=0.010 L=4.0' S=0.0050 '/' Outflow=0.60 cfs 0.105 af

Link 2L: (new Link) Inflow=2.12 cfs 0.239 af
Primary=2.12 cfs 0.239 af

Total Runoff Area = 1.317 ac Runoff Volume = 0.257 af Average Runoff Depth = 2.34"
51.53% Pervious = 0.679 ac 48.47% Impervious = 0.638 ac

Summary for Subcatchment 1S: To E Biofilter

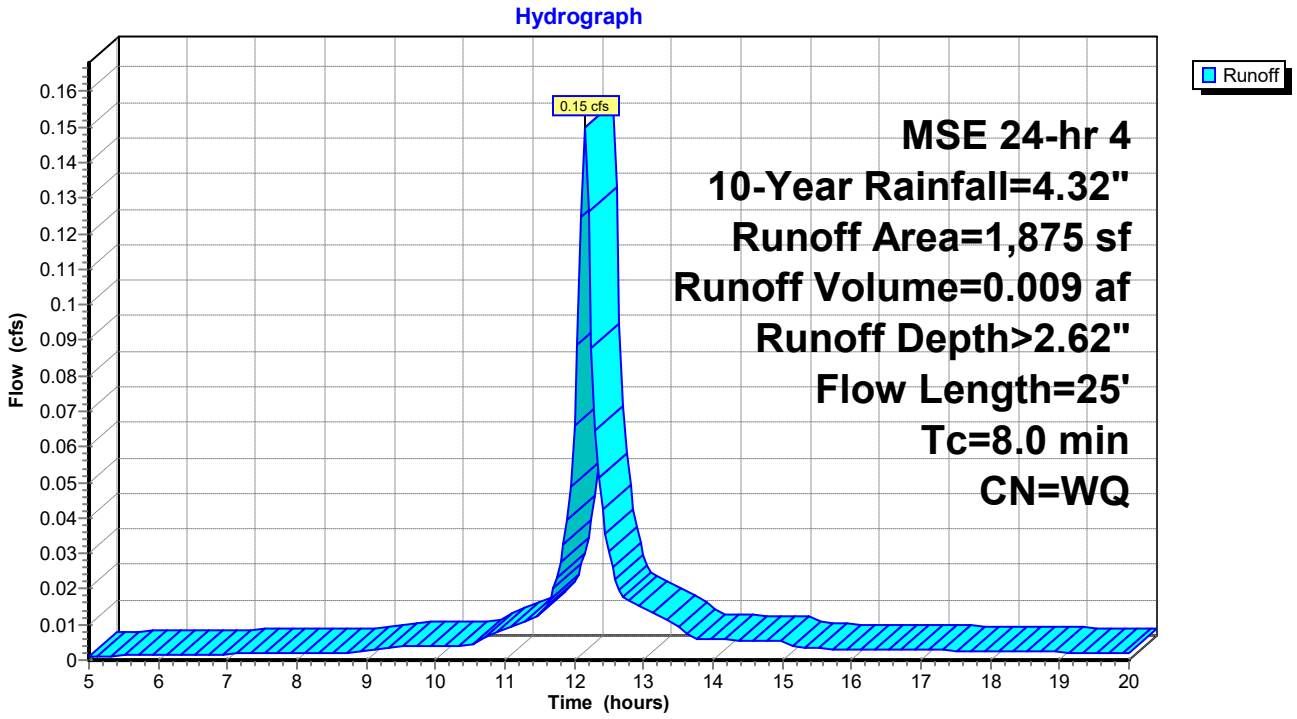
Runoff = 0.15 cfs @ 12.15 hrs, Volume= 0.009 af, Depth> 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	800	61	lawn, HSG B, good
*	645	98	NE 1/4 roof
*	210	100	bio media
*	220	98	retain wall
	1,875		Weighted Average
	800		42.67% Pervious Area
	1,075		57.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	25		0.05		**Direct Entry, lawn above wall to E bio**

Subcatchment 1S: To E Biofilter



Hydrograph for Subcatchment 1S: To E Biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.27	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.30	0.00	0.00
6.75	0.32	0.00	0.00
7.00	0.34	0.00	0.00
7.25	0.36	0.00	0.00
7.50	0.38	0.00	0.00
7.75	0.41	0.00	0.00
8.00	0.43	0.00	0.00
8.25	0.45	0.00	0.00
8.50	0.47	0.00	0.00
8.75	0.50	0.00	0.00
9.00	0.52	0.00	0.00
9.25	0.56	0.01	0.00
9.50	0.60	0.01	0.00
9.75	0.64	0.02	0.00
10.00	0.68	0.02	0.00
10.25	0.73	0.03	0.00
10.50	0.77	0.04	0.00
10.75	0.84	0.06	0.01
11.00	0.93	0.09	0.01
11.25	1.04	0.13	0.01
11.50	1.17	0.18	0.01
11.75	1.42	0.30	0.02
12.00	2.02	0.66	**0.07**
12.25	2.90	1.30	**0.09**
12.50	3.15	1.50	0.03
12.75	3.28	1.60	0.02
13.00	3.39	1.69	0.01
13.25	3.48	1.76	0.01
13.50	3.55	1.82	0.01
13.75	3.59	1.86	0.01
14.00	3.64	1.90	0.01
14.25	3.68	1.93	0.01
14.50	3.72	1.96	0.01
14.75	3.76	2.00	0.01
15.00	3.80	2.03	0.01
15.25	3.82	2.05	0.00
15.50	3.85	2.07	0.00
15.75	3.87	2.09	0.00
16.00	3.89	2.11	0.00
16.25	3.91	2.13	0.00
16.50	3.94	2.15	0.00
16.75	3.96	2.17	0.00
17.00	3.98	2.18	0.00
17.25	4.00	2.20	0.00
17.50	4.02	2.22	0.00
17.75	4.04	2.23	0.00
18.00	4.05	2.25	0.00
18.25	4.07	2.26	0.00
18.50	4.09	2.28	0.00
18.75	4.11	2.29	0.00
19.00	4.12	2.31	0.00
19.25	4.14	2.32	0.00
19.50	4.15	2.33	0.00
19.75	4.17	2.35	0.00
20.00	**4.18**	**2.36**	0.00

Summary for Subcatchment 3S: to curb inlet

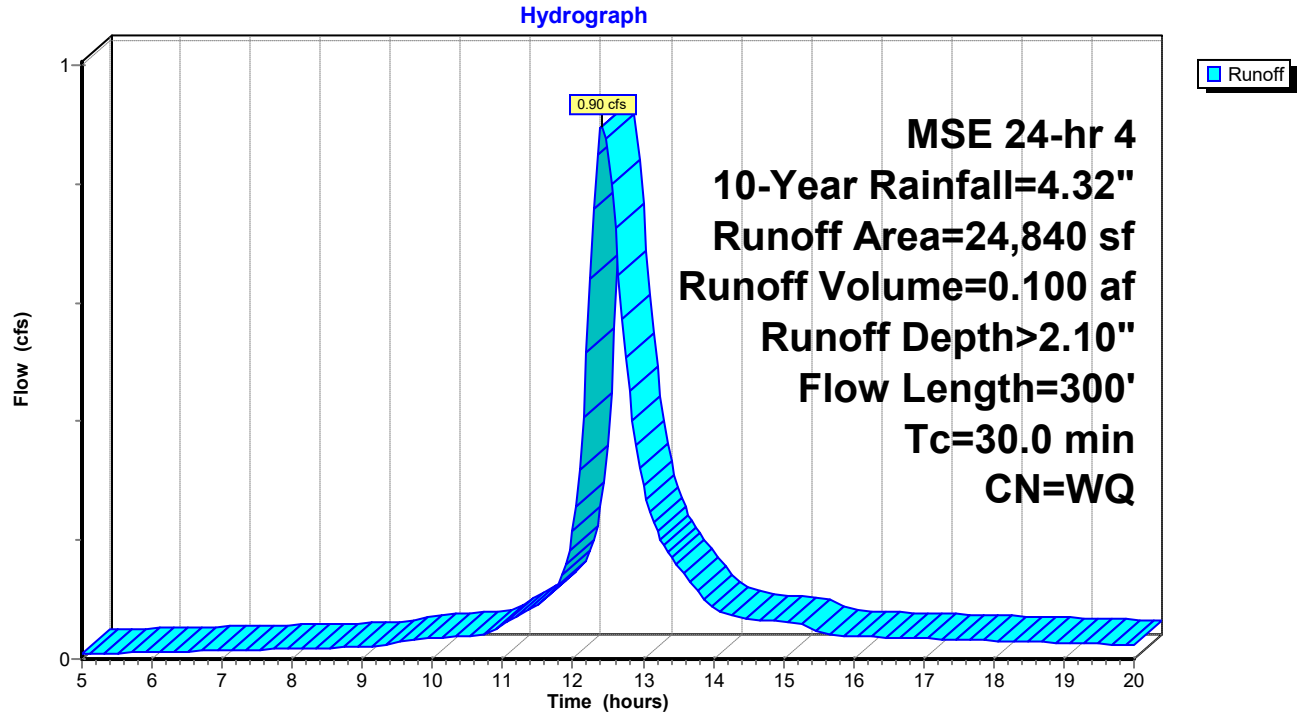
Runoff = 0.90 cfs @ 12.43 hrs, Volume= 0.100 af, Depth> 2.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	3,200	98	S part parking lot
*	160	98	SW
*	780	61	lawn, HSG B, good
*	780	61	lawn above wall
*	100	98	retain wall
*	2,000	61	lawn run on 1845
*	6,200	61	lawn run on 1835
*	2,120	98	roof+drive run on 1835
*	4,500	98	roof+drive run on 1825
*	5,000	61	lwan run on 1825
	24,840		Weighted Average
	14,760		59.42% Pervious Area
	10,080		40.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0	300		0.17		**Direct Entry, 1845 lawn run on**

Subcatchment 3S: to curb inlet



Hydrograph for Subcatchment 3S: to curb inlet

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.01
5.25	0.21	0.00	0.01
5.50	0.23	0.00	0.01
5.75	0.25	0.00	0.01
6.00	0.27	0.00	0.01
6.25	0.28	0.00	0.01
6.50	0.30	0.00	0.01
6.75	0.32	0.00	0.01
7.00	0.34	0.00	0.01
7.25	0.36	0.00	0.02
7.50	0.38	0.00	0.02
7.75	0.41	0.00	0.02
8.00	0.43	0.00	0.02
8.25	0.45	0.00	0.02
8.50	0.47	0.00	0.02
8.75	0.50	0.00	0.02
9.00	0.52	0.00	0.02
9.25	0.56	0.00	0.02
9.50	0.60	0.00	0.03
9.75	0.64	0.00	0.03
10.00	0.68	0.00	0.03
10.25	0.73	0.00	0.04
10.50	0.77	0.01	0.04
10.75	0.84	0.01	0.04
11.00	0.93	0.03	0.06
11.25	1.04	0.05	0.07
11.50	1.17	0.08	0.09
11.75	1.42	0.16	0.12
12.00	2.02	0.43	0.21
12.25	2.90	0.95	**0.64**
12.50	3.15	1.12	**0.86**
12.75	3.28	1.20	0.51
13.00	3.39	1.28	0.29
13.25	3.48	1.35	0.20
13.50	3.55	1.40	0.16
13.75	3.59	1.43	0.12
14.00	3.64	1.46	0.09
14.25	3.68	1.50	0.07
14.50	3.72	1.53	0.07
14.75	3.76	1.56	0.07
15.00	3.80	1.58	0.06
15.25	3.82	1.60	0.06
15.50	3.85	1.62	0.05
15.75	3.87	1.64	0.04
16.00	3.89	1.66	0.04
16.25	3.91	1.67	0.04
16.50	3.94	1.69	0.04
16.75	3.96	1.71	0.04
17.00	3.98	1.72	0.03
17.25	4.00	1.74	0.03
17.50	4.02	1.75	0.03
17.75	4.04	1.77	0.03
18.00	4.05	1.78	0.03
18.25	4.07	1.79	0.03
18.50	4.09	1.81	0.03
18.75	4.11	1.82	0.03
19.00	4.12	1.83	0.03
19.25	4.14	1.84	0.03
19.50	4.15	1.86	0.03
19.75	4.17	1.87	0.02
20.00	**4.18**	**1.88**	0.02

Summary for Subcatchment 4S: to W biofilter

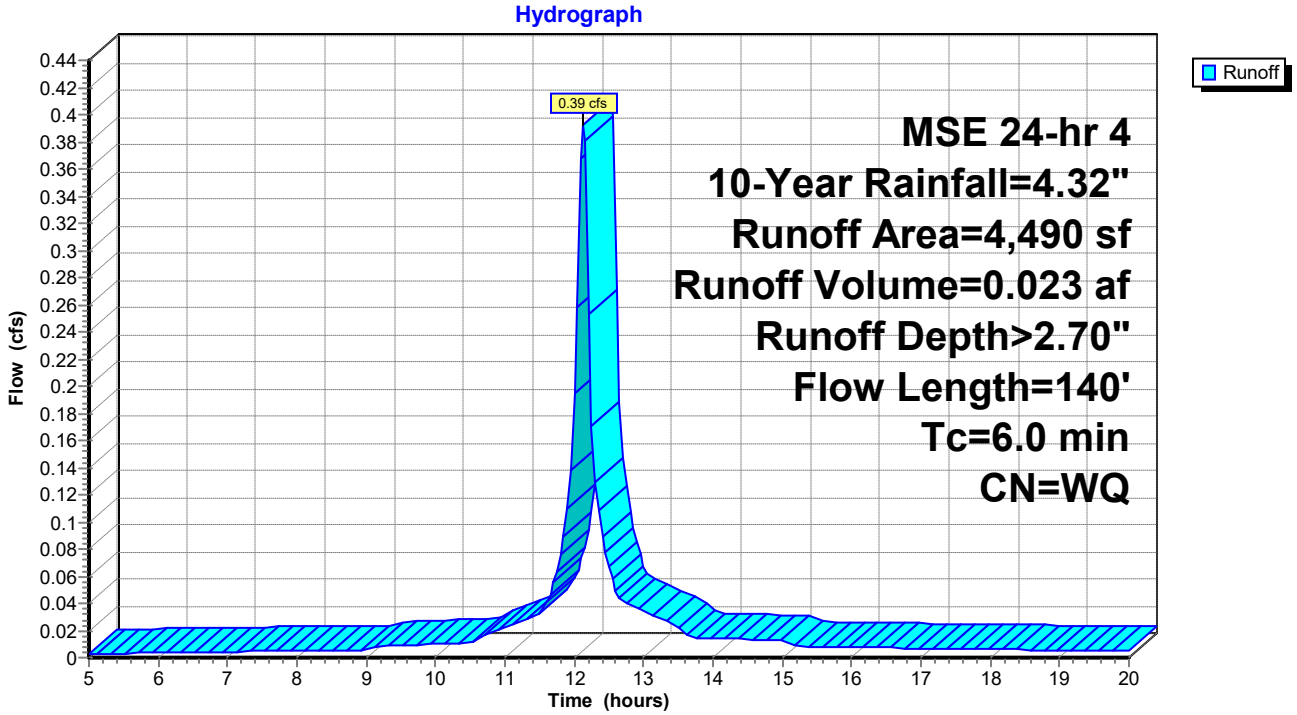
Runoff = 0.39 cfs @ 12.13 hrs, Volume= 0.023 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	2,000	98	N part driveway
*	230	98	N part parking lot
*	1,600	61	lawn, HSG B, good
*	460	100	bio media
*	200	61	bark mulch landscape
	4,490		Weighted Average
	1,800		40.09% Pervious Area
	2,690		59.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	140		0.39		**Direct Entry, lawn via parking**

Subcatchment 4S: to W biofilter



Hydrograph for Subcatchment 4S: to W biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.27	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.30	0.00	0.00
6.75	0.32	0.00	0.00
7.00	0.34	0.00	0.00
7.25	0.36	0.00	0.00
7.50	0.38	0.00	0.00
7.75	0.41	0.00	0.00
8.00	0.43	0.00	0.01
8.25	0.45	0.00	0.01
8.50	0.47	0.00	0.01
8.75	0.50	0.00	0.01
9.00	0.52	0.01	0.01
9.25	0.56	0.01	0.01
9.50	0.60	0.02	0.01
9.75	0.64	0.02	0.01
10.00	0.68	0.03	0.01
10.25	0.73	0.04	0.01
10.50	0.77	0.05	0.01
10.75	0.84	0.08	0.02
11.00	0.93	0.11	0.02
11.25	1.04	0.15	0.03
11.50	1.17	0.21	0.03
11.75	1.42	0.33	0.06
12.00	2.02	0.71	**0.19**
12.25	2.90	1.37	**0.17**
12.50	3.15	1.57	0.07
12.75	3.28	1.67	0.04
13.00	3.39	1.76	0.03
13.25	3.48	1.84	0.03
13.50	3.55	1.90	0.02
13.75	3.59	1.94	0.01
14.00	3.64	1.97	0.01
14.25	3.68	2.01	0.01
14.50	3.72	2.04	0.01
14.75	3.76	2.08	0.01
15.00	3.80	2.11	0.01
15.25	3.82	2.13	0.01
15.50	3.85	2.15	0.01
15.75	3.87	2.17	0.01
16.00	3.89	2.19	0.01
16.25	3.91	2.21	0.01
16.50	3.94	2.23	0.01
16.75	3.96	2.25	0.01
17.00	3.98	2.27	0.01
17.25	4.00	2.28	0.01
17.50	4.02	2.30	0.01
17.75	4.04	2.32	0.01
18.00	4.05	2.33	0.01
18.25	4.07	2.35	0.01
18.50	4.09	2.36	0.01
18.75	4.11	2.38	0.01
19.00	4.12	2.39	0.01
19.25	4.14	2.41	0.01
19.50	4.15	2.42	0.00
19.75	4.17	2.43	0.00
20.00	**4.18**	**2.44**	0.00

Summary for Subcatchment 5S: to NDS 13-14-15

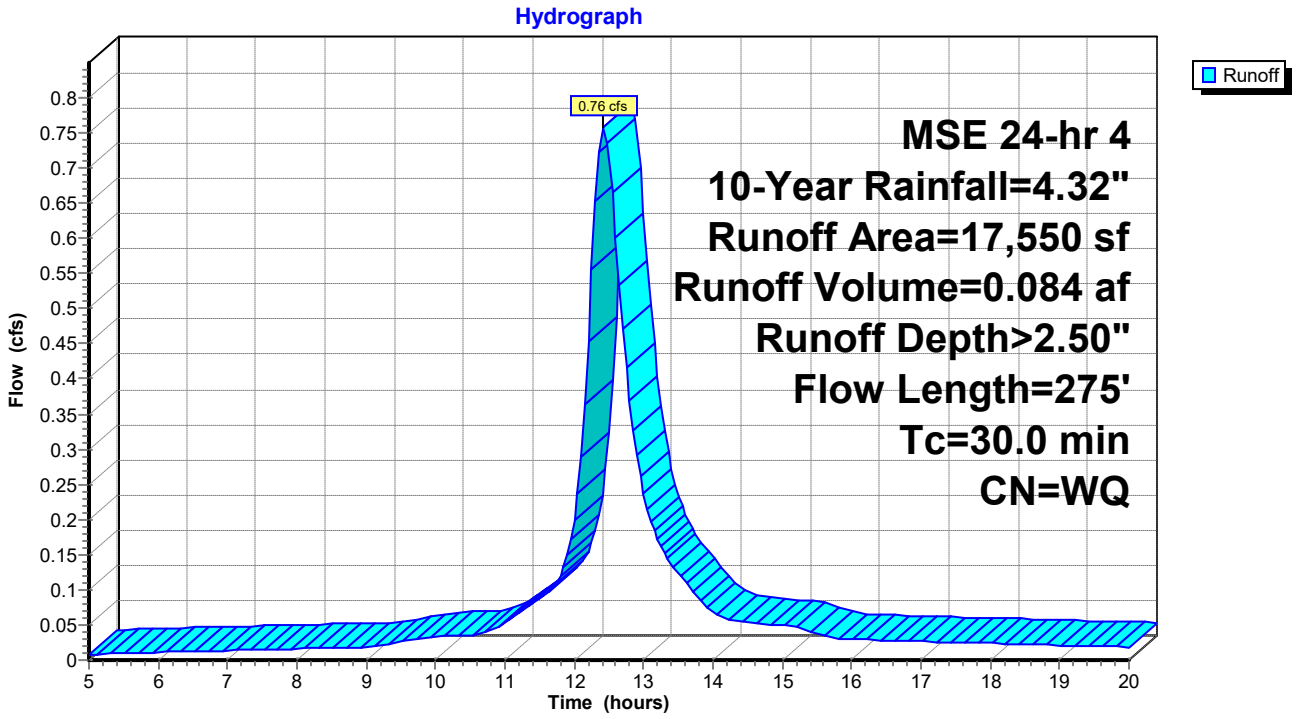
Runoff = 0.76 cfs @ 12.42 hrs, Volume= 0.084 af, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	550	61	NDS 14-15 lawn berm, HSG B, good
*	500	61	NDS 13 lawn
*	9,500	98	roof+drive run on 1825
*	7,000	61	lawn run on 1825
	17,550		Weighted Average
	8,050		45.87% Pervious Area
	9,500		54.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0	275		0.15		**Direct Entry, lawn run on 1825**

Subcatchment 5S: to NDS 13-14-15



Hydrograph for Subcatchment 5S: to NDS 13-14-15

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.01
5.25	0.21	0.00	0.01
5.50	0.23	0.00	0.01
5.75	0.25	0.00	0.01
6.00	0.27	0.00	0.01
6.25	0.28	0.00	0.01
6.50	0.30	0.00	0.01
6.75	0.32	0.00	0.01
7.00	0.34	0.00	0.01
7.25	0.36	0.00	0.01
7.50	0.38	0.00	0.02
7.75	0.41	0.00	0.02
8.00	0.43	0.00	0.02
8.25	0.45	0.00	0.02
8.50	0.47	0.00	0.02
8.75	0.50	0.00	0.02
9.00	0.52	0.00	0.02
9.25	0.56	0.00	0.02
9.50	0.60	0.01	0.03
9.75	0.64	0.01	0.03
10.00	0.68	0.02	0.03
10.25	0.73	0.03	0.03
10.50	0.77	0.03	0.04
10.75	0.84	0.05	0.04
11.00	0.93	0.08	0.05
11.25	1.04	0.11	0.07
11.50	1.17	0.16	0.09
11.75	1.42	0.27	0.11
12.00	2.02	0.62	0.20
12.25	2.90	1.24	**0.56**
12.50	3.15	1.43	**0.72**
12.75	3.28	1.53	0.42
13.00	3.39	1.62	0.24
13.25	3.48	1.69	0.16
13.50	3.55	1.75	0.12
13.75	3.59	1.78	0.09
14.00	3.64	1.82	0.07
14.25	3.68	1.85	0.06
14.50	3.72	1.89	0.05
14.75	3.76	1.92	0.05
15.00	3.80	1.95	0.05
15.25	3.82	1.97	0.05
15.50	3.85	1.99	0.04
15.75	3.87	2.01	0.03
16.00	3.89	2.03	0.03
16.25	3.91	2.05	0.03
16.50	3.94	2.07	0.03
16.75	3.96	2.09	0.03
17.00	3.98	2.10	0.03
17.25	4.00	2.12	0.03
17.50	4.02	2.14	0.03
17.75	4.04	2.15	0.02
18.00	4.05	2.17	0.02
18.25	4.07	2.18	0.02
18.50	4.09	2.20	0.02
18.75	4.11	2.21	0.02
19.00	4.12	2.22	0.02
19.25	4.14	2.24	0.02
19.50	4.15	2.25	0.02
19.75	4.17	2.26	0.02
20.00	**4.18**	**2.27**	0.02

Summary for Subcatchment 6S: untreated

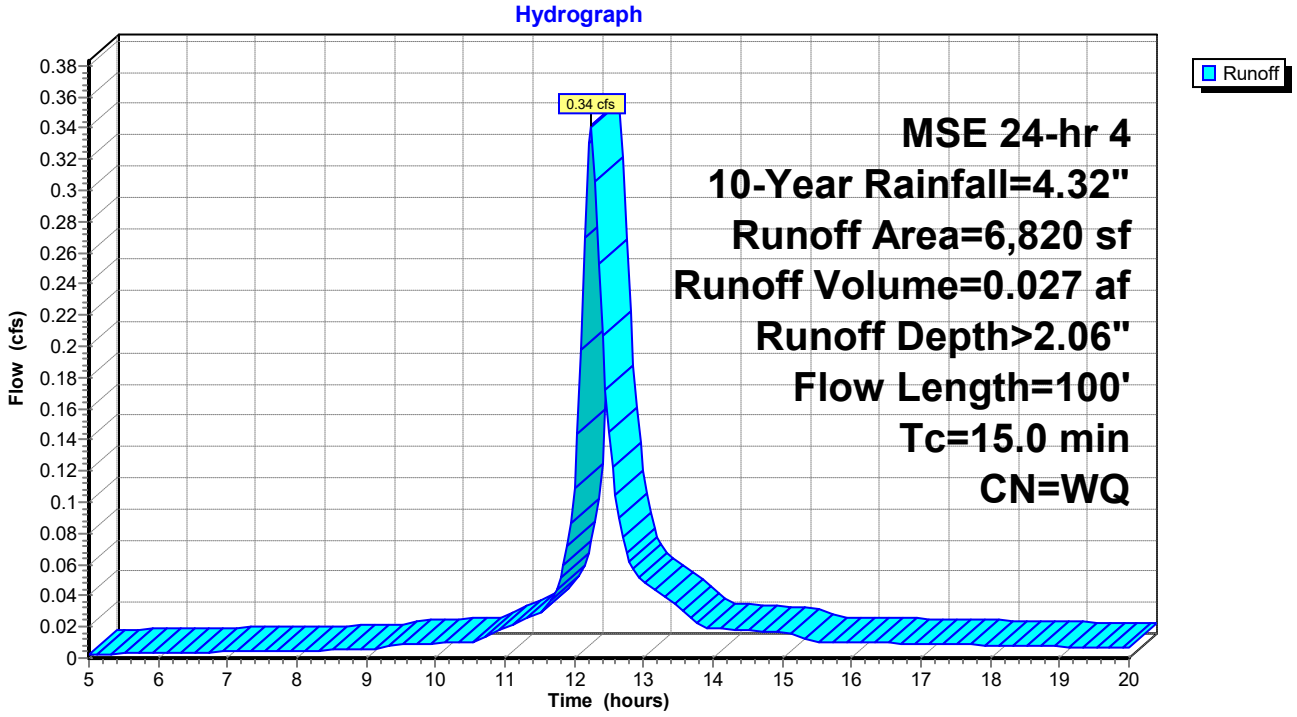
Runoff = 0.34 cfs @ 12.24 hrs, Volume= 0.027 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	2,400	98	S driveway
*	3,400	61	lawn, HSG B, good
*	750	61	bark mulch landscape
*	270	98	retain wall
	6,820		Weighted Average
	4,150		60.85% Pervious Area
	2,670		39.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100		0.11		**Direct Entry, landscape to street**

Subcatchment 6S: untreated



Hydrograph for Subcatchment 6S: untreated

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.27	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.30	0.00	0.00
6.75	0.32	0.00	0.00
7.00	0.34	0.00	0.00
7.25	0.36	0.00	0.00
7.50	0.38	0.00	0.00
7.75	0.41	0.00	0.00
8.00	0.43	0.00	0.00
8.25	0.45	0.00	0.00
8.50	0.47	0.00	0.01
8.75	0.50	0.00	0.01
9.00	0.52	0.00	0.01
9.25	0.56	0.00	0.01
9.50	0.60	0.00	0.01
9.75	0.64	0.00	0.01
10.00	0.68	0.00	0.01
10.25	0.73	0.00	0.01
10.50	0.77	0.00	0.01
10.75	0.84	0.01	0.01
11.00	0.93	0.02	0.02
11.25	1.04	0.04	0.02
11.50	1.17	0.07	0.03
11.75	1.42	0.14	0.04
12.00	2.02	0.39	0.11
12.25	2.90	0.90	**0.34**
12.50	3.15	1.06	0.14
12.75	3.28	1.15	0.07
13.00	3.39	1.22	0.05
13.25	3.48	1.28	0.04
13.50	3.55	1.34	0.03
13.75	3.59	1.37	0.02
14.00	3.64	1.40	0.02
14.25	3.68	1.43	0.02
14.50	3.72	1.46	0.02
14.75	3.76	1.49	0.02
15.00	3.80	1.52	0.02
15.25	3.82	1.53	0.01
15.50	3.85	1.55	0.01
15.75	3.87	1.57	0.01
16.00	3.89	1.59	0.01
16.25	3.91	1.60	0.01
16.50	3.94	1.62	0.01
16.75	3.96	1.63	0.01
17.00	3.98	1.65	0.01
17.25	4.00	1.67	0.01
17.50	4.02	1.68	0.01
17.75	4.04	1.69	0.01
18.00	4.05	1.71	0.01
18.25	4.07	1.72	0.01
18.50	4.09	1.73	0.01
18.75	4.11	1.75	0.01
19.00	4.12	1.76	0.01
19.25	4.14	1.77	0.01
19.50	4.15	1.78	0.01
19.75	4.17	1.79	0.01
20.00	**4.18**	**1.80**	0.01

Summary for Subcatchment 7S: NW 1/4 roof

[49] Hint: Tc<2dt may require smaller dt

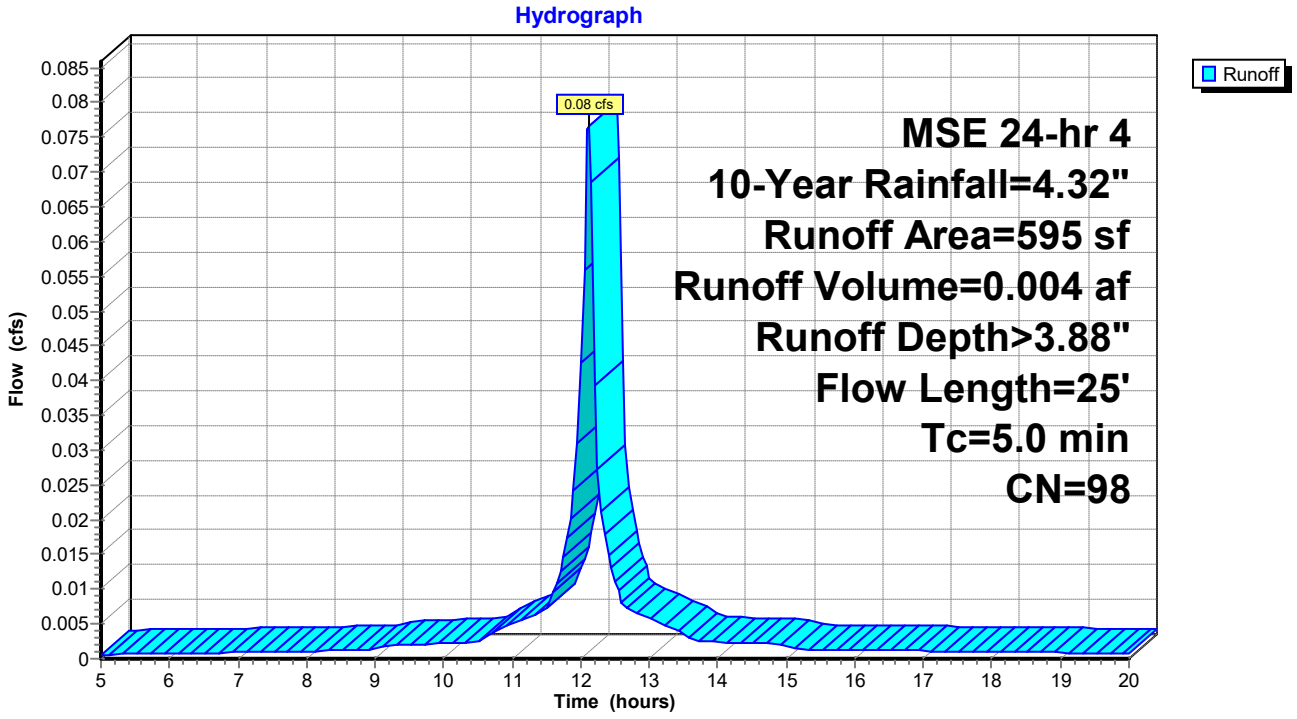
Runoff = 0.08 cfs @ 12.11 hrs, Volume= 0.004 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	595	98	NW 1/4 roof
	595		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, NW 1/4 roof**

Subcatchment 7S: NW 1/4 roof



Hydrograph for Subcatchment 7S: NW 1/4 roof

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.07	0.00
5.25	0.21	0.08	0.00
5.50	0.23	0.09	0.00
5.75	0.25	0.10	0.00
6.00	0.27	0.12	0.00
6.25	0.28	0.13	0.00
6.50	0.30	0.15	0.00
6.75	0.32	0.16	0.00
7.00	0.34	0.18	0.00
7.25	0.36	0.20	0.00
7.50	0.38	0.22	0.00
7.75	0.41	0.23	0.00
8.00	0.43	0.25	0.00
8.25	0.45	0.27	0.00
8.50	0.47	0.29	0.00
8.75	0.50	0.32	0.00
9.00	0.52	0.34	0.00
9.25	0.56	0.37	0.00
9.50	0.60	0.41	0.00
9.75	0.64	0.45	0.00
10.00	0.68	0.49	0.00
10.25	0.73	0.53	0.00
10.50	0.77	0.57	0.00
10.75	0.84	0.64	0.00
11.00	0.93	0.73	0.01
11.25	1.04	0.83	0.01
11.50	1.17	0.96	0.01
11.75	1.42	1.20	0.01
12.00	2.02	1.80	**0.04**
12.25	2.90	2.67	**0.03**
12.50	3.15	2.91	0.01
12.75	3.28	3.04	0.01
13.00	3.39	3.15	0.01
13.25	3.48	3.24	0.00
13.50	3.55	3.31	0.00
13.75	3.59	3.36	0.00
14.00	3.64	3.40	0.00
14.25	3.68	3.44	0.00
14.50	3.72	3.48	0.00
14.75	3.76	3.52	0.00
15.00	3.80	3.56	0.00
15.25	3.82	3.59	0.00
15.50	3.85	3.61	0.00
15.75	3.87	3.63	0.00
16.00	3.89	3.66	0.00
16.25	3.91	3.68	0.00
16.50	3.94	3.70	0.00
16.75	3.96	3.72	0.00
17.00	3.98	3.74	0.00
17.25	4.00	3.76	0.00
17.50	4.02	3.78	0.00
17.75	4.04	3.80	0.00
18.00	4.05	3.82	0.00
18.25	4.07	3.84	0.00
18.50	4.09	3.85	0.00
18.75	4.11	3.87	0.00
19.00	4.12	3.89	0.00
19.25	4.14	3.90	0.00
19.50	4.15	3.92	0.00
19.75	4.17	3.93	0.00
20.00	**4.18**	**3.94**	0.00

Summary for Subcatchment 8S: S 1/2 roof

[49] Hint: Tc<2dt may require smaller dt

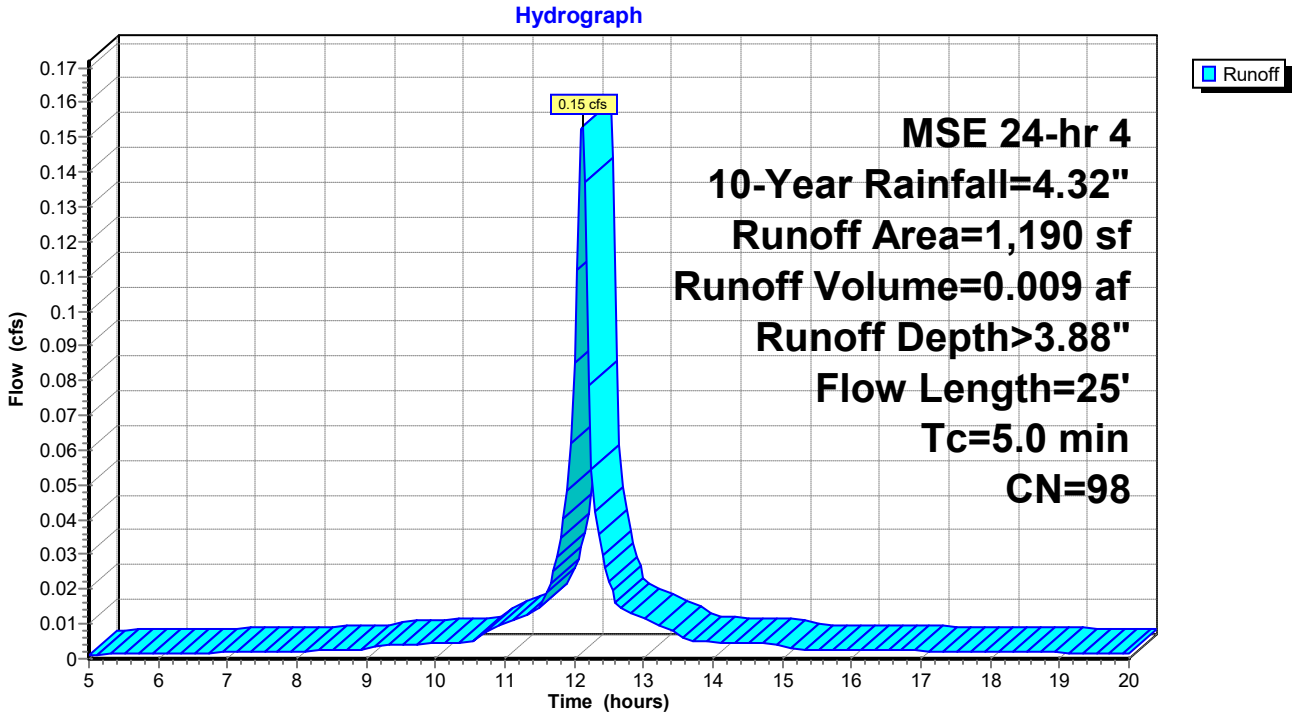
Runoff = 0.15 cfs @ 12.11 hrs, Volume= 0.009 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	1,190	98	S 1/2 roof
	1,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, S 1/2 roof**

Subcatchment 8S: S 1/2 roof



Hydrograph for Subcatchment 8S: S 1/2 roof

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.07	0.00
5.25	0.21	0.08	0.00
5.50	0.23	0.09	0.00
5.75	0.25	0.10	0.00
6.00	0.27	0.12	0.00
6.25	0.28	0.13	0.00
6.50	0.30	0.15	0.00
6.75	0.32	0.16	0.00
7.00	0.34	0.18	0.00
7.25	0.36	0.20	0.00
7.50	0.38	0.22	0.00
7.75	0.41	0.23	0.00
8.00	0.43	0.25	0.00
8.25	0.45	0.27	0.00
8.50	0.47	0.29	0.00
8.75	0.50	0.32	0.00
9.00	0.52	0.34	0.00
9.25	0.56	0.37	0.00
9.50	0.60	0.41	0.00
9.75	0.64	0.45	0.00
10.00	0.68	0.49	0.00
10.25	0.73	0.53	0.00
10.50	0.77	0.57	0.00
10.75	0.84	0.64	0.01
11.00	0.93	0.73	0.01
11.25	1.04	0.83	0.01
11.50	1.17	0.96	0.01
11.75	1.42	1.20	0.03
12.00	2.02	1.80	**0.09**
12.25	2.90	2.67	**0.05**
12.50	3.15	2.91	0.02
12.75	3.28	3.04	0.01
13.00	3.39	3.15	0.01
13.25	3.48	3.24	0.01
13.50	3.55	3.31	0.01
13.75	3.59	3.36	0.00
14.00	3.64	3.40	0.00
14.25	3.68	3.44	0.00
14.50	3.72	3.48	0.00
14.75	3.76	3.52	0.00
15.00	3.80	3.56	0.00
15.25	3.82	3.59	0.00
15.50	3.85	3.61	0.00
15.75	3.87	3.63	0.00
16.00	3.89	3.66	0.00
16.25	3.91	3.68	0.00
16.50	3.94	3.70	0.00
16.75	3.96	3.72	0.00
17.00	3.98	3.74	0.00
17.25	4.00	3.76	0.00
17.50	4.02	3.78	0.00
17.75	4.04	3.80	0.00
18.00	4.05	3.82	0.00
18.25	4.07	3.84	0.00
18.50	4.09	3.85	0.00
18.75	4.11	3.87	0.00
19.00	4.12	3.89	0.00
19.25	4.14	3.90	0.00
19.50	4.15	3.92	0.00
19.75	4.17	3.93	0.00
20.00	**4.18**	**3.94**	0.00

Summary for Reach 3R: S. 8" PVC

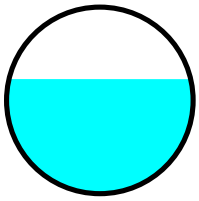
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.430 ac, 57.04% Impervious, Inflow Depth > 2.59" for 10-Year event
Inflow = 0.79 cfs @ 12.41 hrs, Volume= 0.093 af
Outflow = 0.78 cfs @ 12.43 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.50 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.56 fps, Avg. Travel Time= 0.9 min

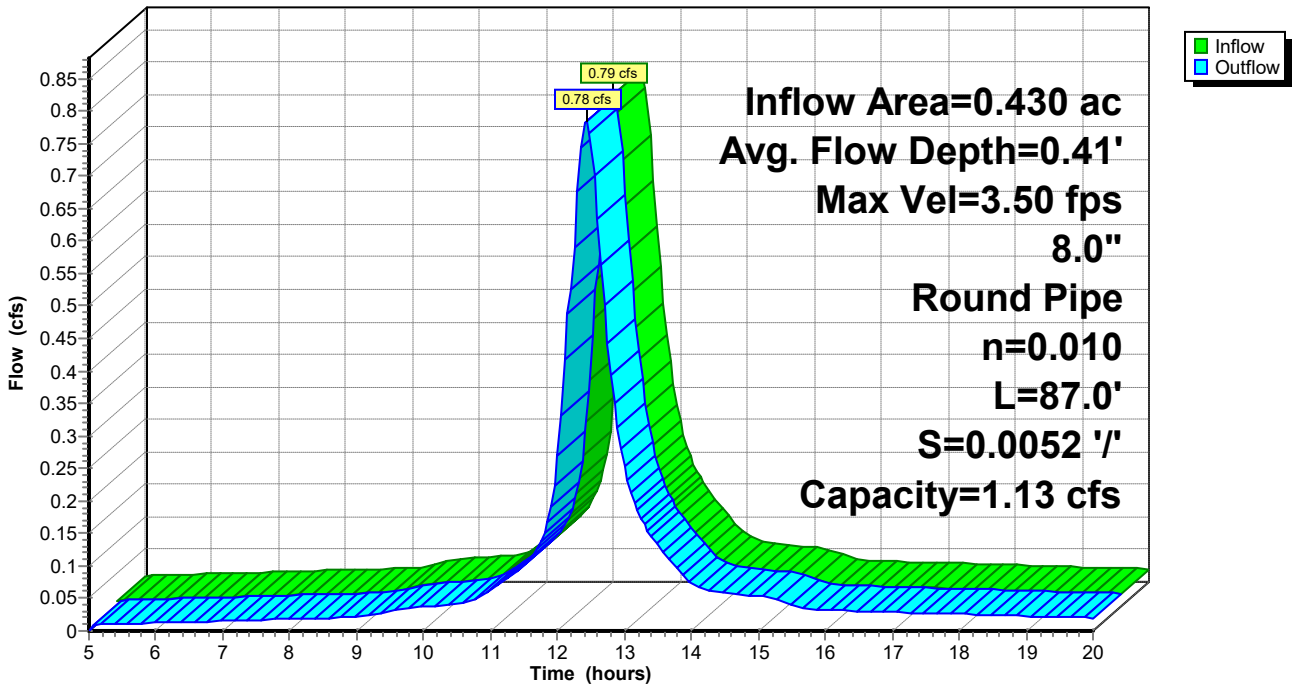
Peak Storage= 20 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.13 cfs

8.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 87.0' Slope= 0.0052 '/'
Inlet Invert= 676.38', Outlet Invert= 675.93'



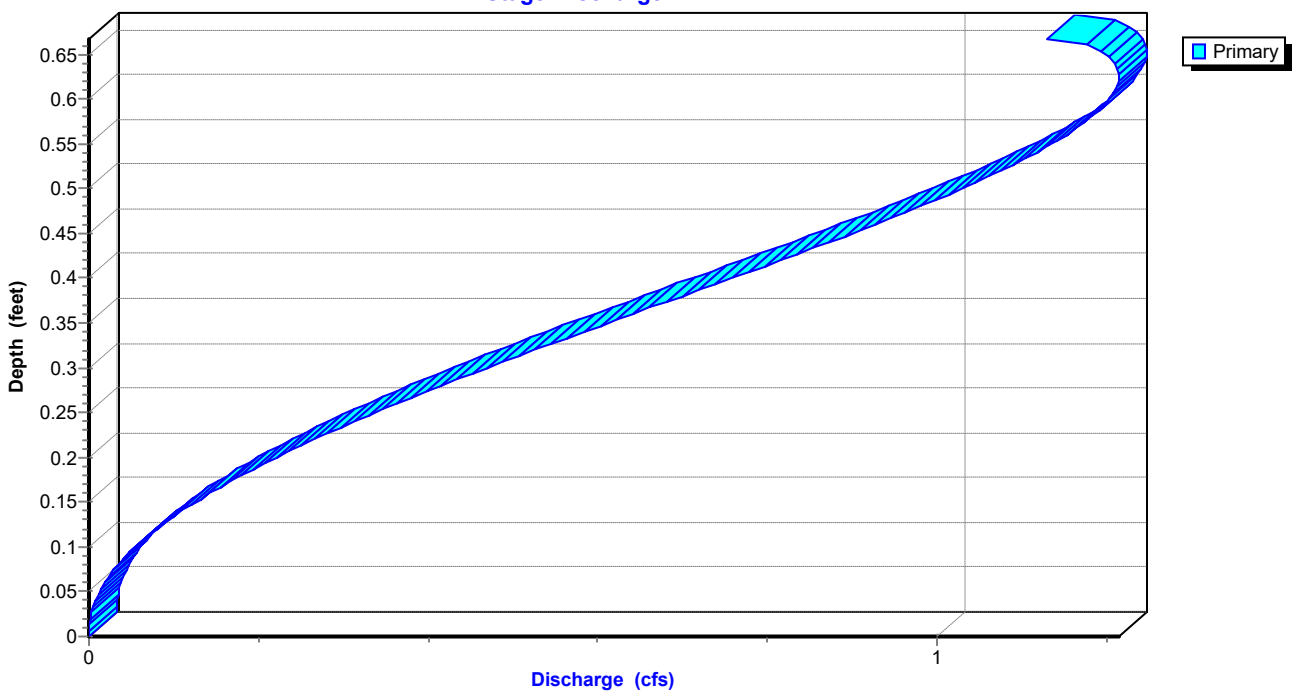
Reach 3R: S. 8" PVC

Hydrograph

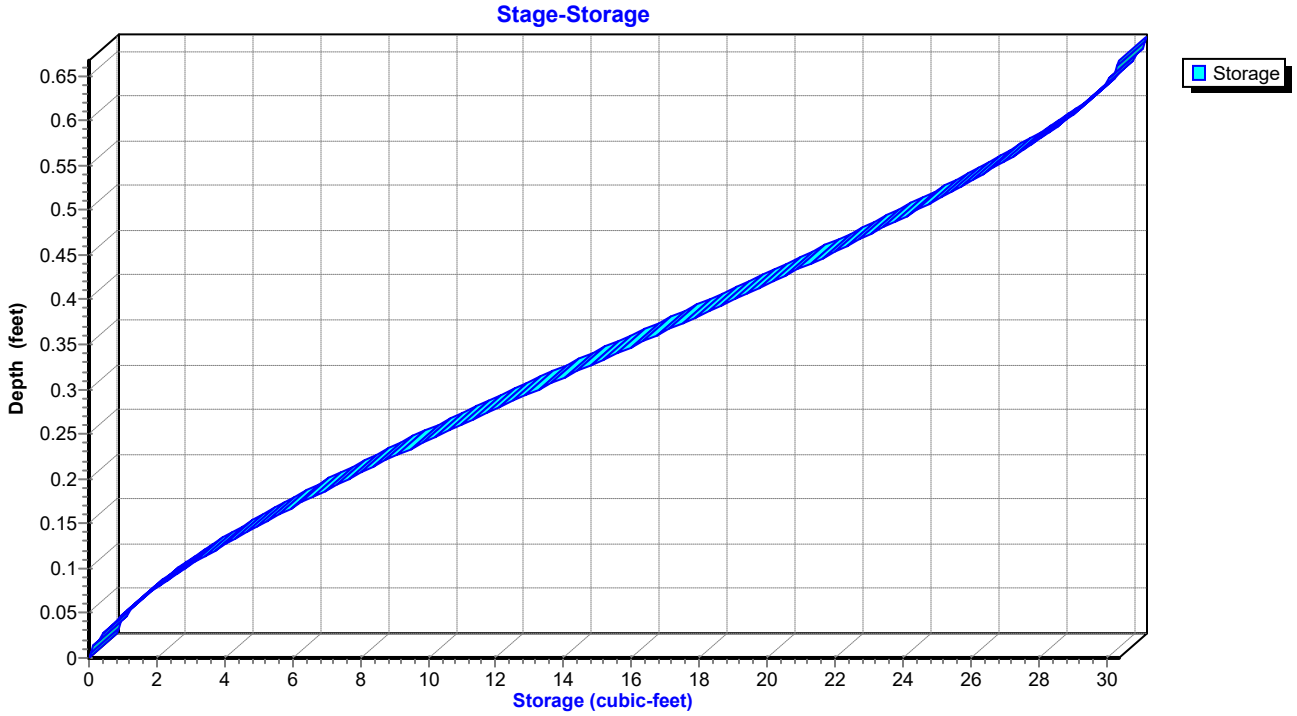


Reach 3R: S. 8" PVC

Stage-Discharge



Reach 3R: S. 8" PVC



Hydrograph for Reach 3R: S. 8" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.01	0	676.38	0.00
5.50	0.01	1	676.43	0.01
6.00	0.01	1	676.43	0.01
6.50	0.01	1	676.43	0.01
7.00	0.02	1	676.43	0.02
7.50	0.02	1	676.44	0.02
8.00	0.02	1	676.44	0.02
8.50	0.02	1	676.44	0.02
9.00	0.02	1	676.44	0.02
9.50	0.03	2	676.46	0.03
10.00	0.04	2	676.46	0.04
10.50	0.04	2	676.47	0.04
11.00	0.06	3	676.49	0.06
11.50	0.10	4	676.51	0.10
12.00	**0.28**	**9**	**676.60**	**0.27**
12.50	**0.74**	**19**	**676.78**	**0.75**
13.00	0.25	8	676.59	0.25
13.50	0.13	5	676.53	0.13
14.00	0.07	4	676.50	0.07
14.50	0.06	3	676.48	0.06
15.00	0.05	3	676.48	0.05
15.50	0.04	2	676.47	0.04
16.00	0.03	2	676.46	0.03
16.50	0.03	2	676.46	0.03
17.00	0.03	2	676.45	0.03
17.50	0.03	2	676.45	0.03
18.00	0.03	2	676.45	0.03
18.50	0.02	2	676.45	0.02
19.00	0.02	2	676.45	0.02
19.50	0.02	1	676.44	0.02
20.00	0.02	1	676.44	0.02

Stage-Discharge for Reach 3R: S. 8" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
676.38	0.00	0.00
676.39	0.37	0.00
676.40	0.60	0.00
676.41	0.78	0.00
676.42	0.94	0.01
676.43	1.08	0.01
676.44	1.21	0.02
676.45	1.34	0.03
676.46	1.46	0.03
676.47	1.57	0.04
676.48	1.67	0.05
676.49	1.77	0.07
676.50	1.87	0.08
676.51	1.96	0.09
676.52	2.05	0.11
676.53	2.13	0.13
676.54	2.22	0.14
676.55	2.29	0.16
676.56	2.37	0.18
676.57	2.44	0.20
676.58	2.51	0.22
676.59	2.58	0.24
676.60	2.65	0.27
676.61	2.71	0.29
676.62	2.77	0.31
676.63	2.83	0.34
676.64	2.88	0.36
676.65	2.94	0.39
676.66	2.99	0.42
676.67	3.04	0.44
676.68	3.09	0.47
676.69	3.14	0.50
676.70	3.18	0.53
676.71	3.22	0.56
676.72	3.26	0.58
676.73	3.30	0.61
676.74	3.34	0.64
676.75	3.38	0.67
676.76	3.41	0.70
676.77	3.44	0.73
676.78	3.47	0.76
676.79	3.50	0.79
676.80	3.53	0.82
676.81	3.55	0.85
676.82	3.57	0.87
676.83	3.59	0.90
676.84	3.61	0.93
676.85	3.63	0.95
676.86	3.64	0.98
676.87	3.66	1.01
676.88	3.67	1.03
676.89	3.68	1.05
676.90	3.68	1.08
676.91	3.69	1.10
676.92	**3.69**	1.12
676.93	3.69	1.14
676.94	3.69	1.15
676.95	3.68	1.17
676.96	3.67	1.18
676.97	3.66	1.19
676.98	3.64	1.20
676.99	3.62	1.21
677.00	3.59	**1.21**
677.01	3.56	1.21
677.02	3.51	1.21
677.03	3.46	1.20
677.04	3.38	1.18
677.05	3.17	1.11

Stage-Area-Storage for Reach 3R: S. 8" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
676.38	0.0	0
676.39	0.0	0
676.40	0.0	0
676.41	0.0	0
676.42	0.0	1
676.43	0.0	1
676.44	0.0	1
676.45	0.0	2
676.46	0.0	2
676.47	0.0	2
676.48	0.0	3
676.49	0.0	3
676.50	0.0	4
676.51	0.0	4
676.52	0.1	5
676.53	0.1	5
676.54	0.1	6
676.55	0.1	6
676.56	0.1	7
676.57	0.1	7
676.58	0.1	8
676.59	0.1	8
676.60	0.1	9
676.61	0.1	9
676.62	0.1	10
676.63	0.1	10
676.64	0.1	11
676.65	0.1	12
676.66	0.1	12
676.67	0.1	13
676.68	0.2	13
676.69	0.2	14
676.70	0.2	14
676.71	0.2	15
676.72	0.2	16
676.73	0.2	16
676.74	0.2	17
676.75	0.2	17
676.76	0.2	18
676.77	0.2	18
676.78	0.2	19
676.79	0.2	20
676.80	0.2	20
676.81	0.2	21
676.82	0.2	21
676.83	0.3	22
676.84	0.3	22
676.85	0.3	23
676.86	0.3	23
676.87	0.3	24
676.88	0.3	24
676.89	0.3	25
676.90	0.3	25
676.91	0.3	26
676.92	0.3	26
676.93	0.3	27
676.94	0.3	27
676.95	0.3	28
676.96	0.3	28
676.97	0.3	28
676.98	0.3	29
676.99	0.3	29
677.00	0.3	29
677.01	0.3	30
677.02	0.3	30
677.03	0.3	30
677.04	0.3	30
677.05	**0.3**	**30**

Summary for Reach 4R: 6" PVC

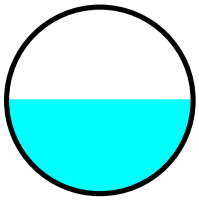
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.160 ac, 49.72% Impervious, Inflow Depth > 2.05" for 10-Year event
Inflow = 1.36 cfs @ 12.45 hrs, Volume= 0.198 af
Outflow = 1.36 cfs @ 12.46 hrs, Volume= 0.198 af, Atten= 0%, Lag= 0.2 min

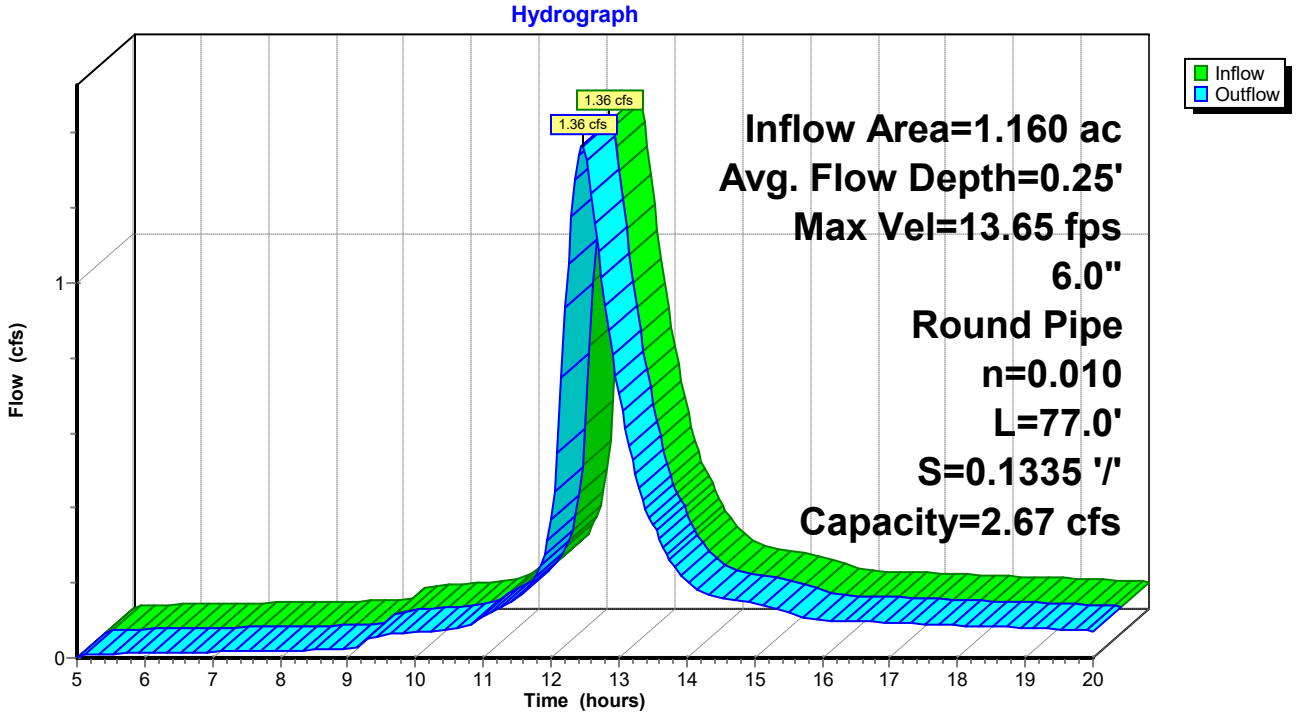
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 13.65 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 6.36 fps, Avg. Travel Time= 0.2 min

Peak Storage= 8 cf @ 12.45 hrs
Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 2.67 cfs

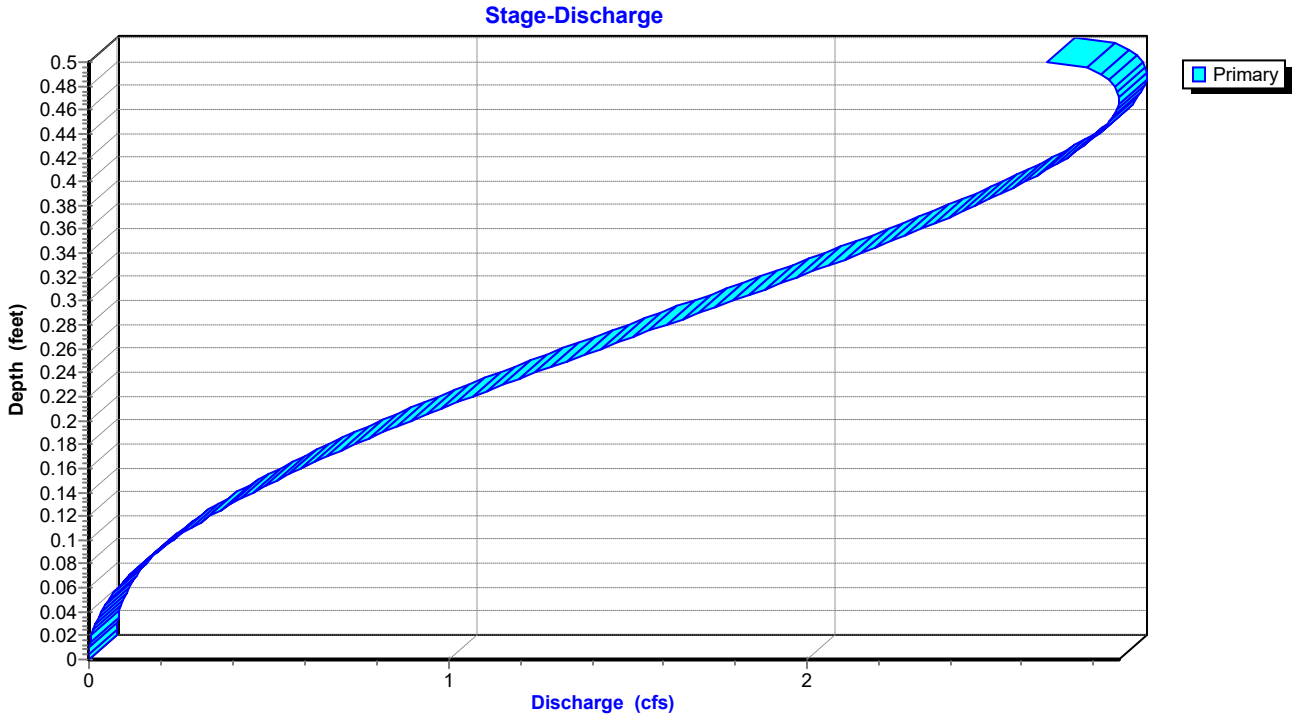
6.0" Round Pipe
n= 0.010
Length= 77.0' Slope= 0.1335 '/'
Inlet Invert= 668.80', Outlet Invert= 658.52'



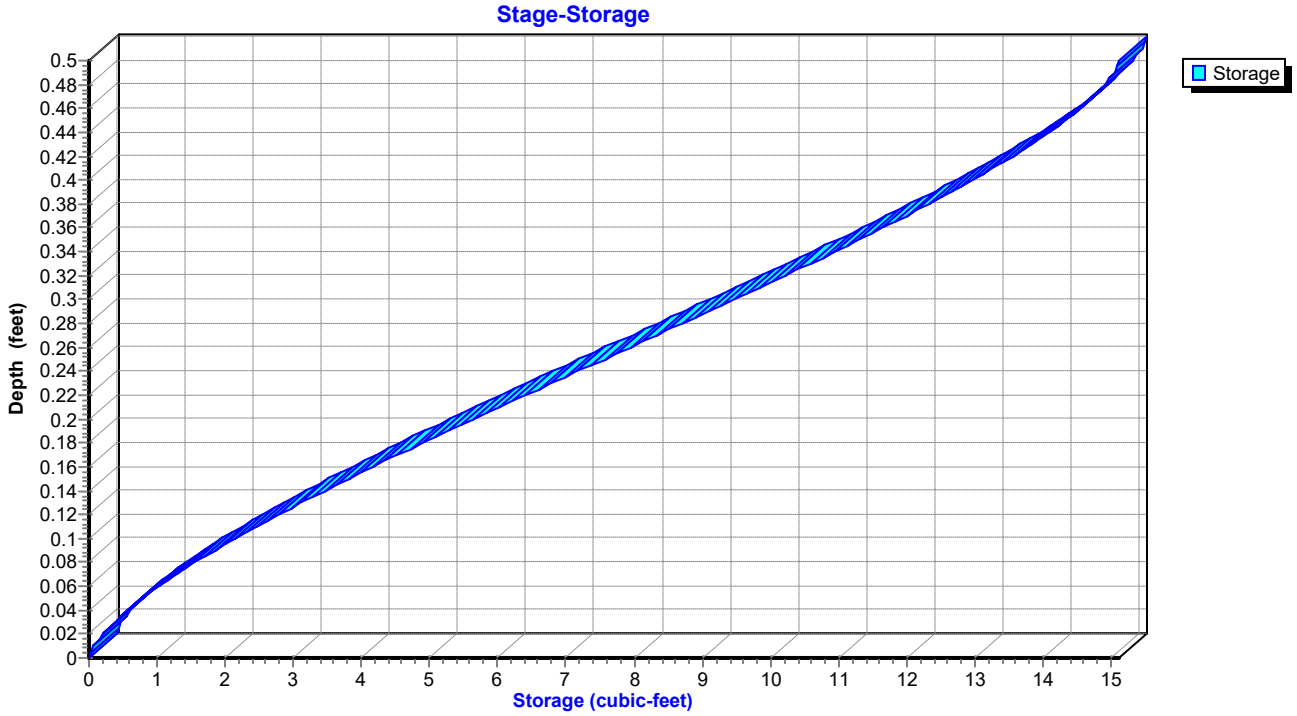
Reach 4R: 6" PVC



Reach 4R: 6" PVC



Reach 4R: 6" PVC



Hydrograph for Reach 4R: 6" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	668.80	0.00
5.50	0.01	0	668.82	0.01
6.00	0.01	0	668.83	0.01
6.50	0.01	0	668.83	0.01
7.00	0.02	0	668.83	0.02
7.50	0.02	0	668.83	0.02
8.00	0.02	0	668.83	0.02
8.50	0.02	0	668.83	0.02
9.00	0.02	0	668.83	0.02
9.50	0.06	1	668.85	0.06
10.00	0.07	1	668.86	0.07
10.50	0.07	1	668.86	0.07
11.00	0.11	1	668.87	0.11
11.50	0.16	2	668.88	0.16
12.00	**0.37**	**3**	**668.93**	**0.37**
12.50	**1.35**	**8**	**669.05**	**1.35**
13.00	0.70	5	668.98	0.71
13.50	0.36	3	668.92	0.36
14.00	0.21	2	668.89	0.21
14.50	0.16	2	668.88	0.16
15.00	0.15	2	668.88	0.15
15.50	0.12	1	668.87	0.12
16.00	0.10	1	668.87	0.10
16.50	0.10	1	668.87	0.10
17.00	0.09	1	668.86	0.09
17.50	0.09	1	668.86	0.09
18.00	0.09	1	668.86	0.09
18.50	0.08	1	668.86	0.08
19.00	0.08	1	668.86	0.08
19.50	0.08	1	668.86	0.08
20.00	0.07	1	668.86	0.07

Stage-Discharge for Reach 4R: 6" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
668.80	0.00	0.00
668.81	1.91	0.00
668.82	3.01	0.01
668.83	3.93	0.02
668.84	4.72	0.03
668.85	5.45	0.06
668.86	6.11	0.08
668.87	6.72	0.11
668.88	7.30	0.15
668.89	7.84	0.19
668.90	8.35	0.23
668.91	8.83	0.28
668.92	9.29	0.34
668.93	9.73	0.39
668.94	10.14	0.46
668.95	10.54	0.52
668.96	10.91	0.59
668.97	11.27	0.66
668.98	11.61	0.74
668.99	11.94	0.82
669.00	12.25	0.90
669.01	12.54	0.98
669.02	12.82	1.07
669.03	13.09	1.15
669.04	13.34	1.24
669.05	13.57	1.33
669.06	13.80	1.42
669.07	14.01	1.52
669.08	14.20	1.61
669.09	14.39	1.70
669.10	14.56	1.79
669.11	14.71	1.88
669.12	14.86	1.97
669.13	14.98	2.06
669.14	15.10	2.15
669.15	15.20	2.23
669.16	15.29	2.31
669.17	15.36	2.39
669.18	15.41	2.47
669.19	15.45	2.54
669.20	15.47	2.61
669.21	**15.47**	2.67
669.22	15.46	2.72
669.23	15.42	2.77
669.24	15.35	2.81
669.25	15.26	2.84
669.26	15.14	2.86
669.27	14.97	**2.87**
669.28	14.74	2.86
669.29	14.41	2.82
669.30	13.57	2.67

Stage-Area-Storage for Reach 4R: 6" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
668.80	0.0	0
668.81	0.0	0
668.82	0.0	0
668.83	0.0	0
668.84	0.0	1
668.85	0.0	1
668.86	0.0	1
668.87	0.0	1
668.88	0.0	2
668.89	0.0	2
668.90	0.0	2
668.91	0.0	2
668.92	0.0	3
668.93	0.0	3
668.94	0.0	3
668.95	0.0	4
668.96	0.1	4
668.97	0.1	5
668.98	0.1	5
668.99	0.1	5
669.00	0.1	6
669.01	0.1	6
669.02	0.1	6
669.03	0.1	7
669.04	0.1	7
669.05	0.1	8
669.06	0.1	8
669.07	0.1	8
669.08	0.1	9
669.09	0.1	9
669.10	0.1	9
669.11	0.1	10
669.12	0.1	10
669.13	0.1	11
669.14	0.1	11
669.15	0.1	11
669.16	0.2	12
669.17	0.2	12
669.18	0.2	12
669.19	0.2	13
669.20	0.2	13
669.21	0.2	13
669.22	0.2	14
669.23	0.2	14
669.24	0.2	14
669.25	0.2	14
669.26	0.2	15
669.27	0.2	15
669.28	0.2	15
669.29	0.2	15
669.30	**0.2**	**15**

Summary for Pond 3P: E biofilter LINED

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=13)

Inflow Area = 0.043 ac, 57.33% Impervious, Inflow Depth > 2.62" for 10-Year event
Inflow = 0.15 cfs @ 12.15 hrs, Volume= 0.009 af
Outflow = 0.03 cfs @ 12.48 hrs, Volume= 0.008 af, Atten= 78%, Lag= 19.8 min
Discarded = 0.00 cfs @ 12.48 hrs, Volume= 0.000 af
Primary = 0.03 cfs @ 12.48 hrs, Volume= 0.008 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 680.81' @ 12.48 hrs Surf.Area= 540 sf Storage= 178 cf

Plug-Flow detention time= 112.0 min calculated for 0.008 af (87% of inflow)
Center-of-Mass det. time= 71.7 min (821.8 - 750.1)

Volume	Invert	Avail.Storage	Storage Description
#1	678.00'	54 cf	**10.50'W x 15.50'L x 1.00'H sand invert** 163 cf Overall x 33.0% Voids
#2	679.00'	66 cf	**10.50'W x 15.50'L x 1.50'H media** 244 cf Overall x 27.0% Voids
#3	680.50'	128 cf	**10.50'W x 15.50'L x 0.60'H top media Z=3.0**
#4	681.10'	192 cf	**39.25'W x 19.25'L x 0.24'H NDS drain Z=3.0**
#5	681.34'	82 cf	**40.00'W x 20.00'L x 0.10'H weir overflow Z=3.0**
		521 cf	Total Available Storage

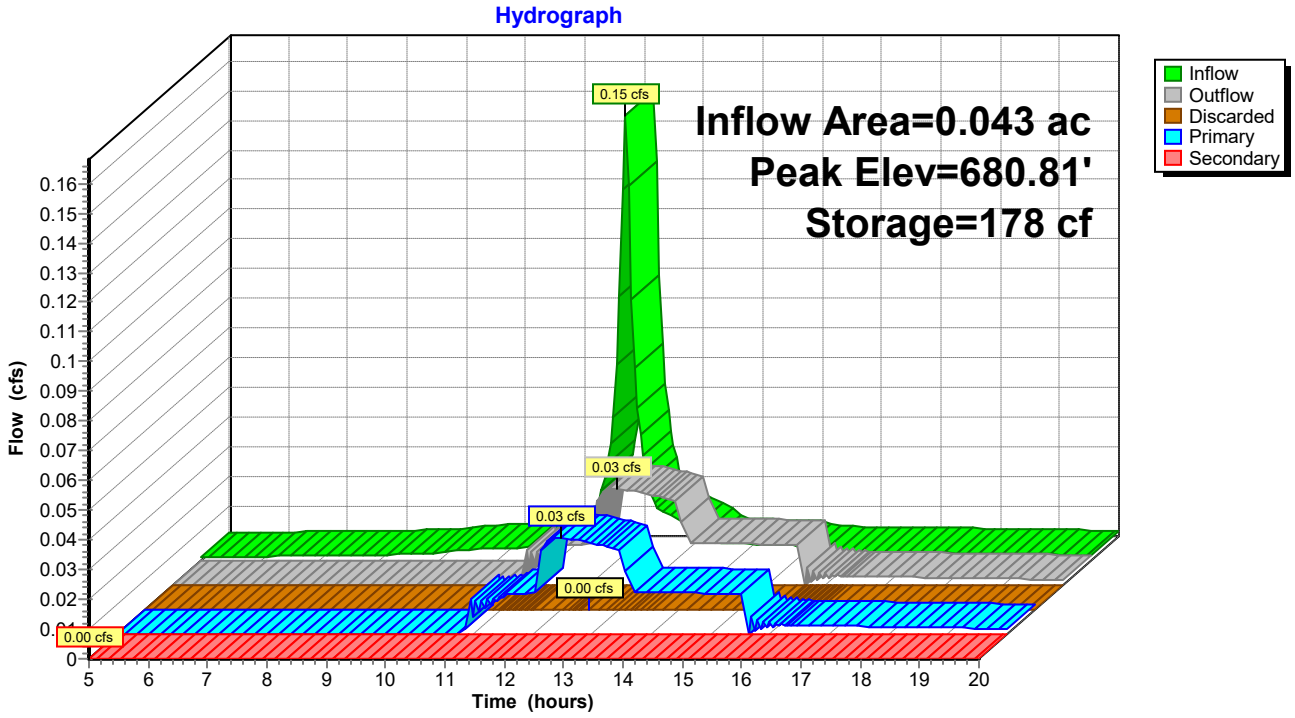
Device	Routing	Invert	Outlet Devices
#1	Secondary	681.34'	**6.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Primary	681.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	678.00'	**3.600 in/hr underdrain over Horizontal area above 678.00'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 163 sf Phase-In= 0.50'
#4	Discarded	678.00'	**0.001 in/hr Exfiltration over Horizontal area above 678.00'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 163 sf Phase-In= 0.50'

Discarded OutFlow Max=0.00 cfs @ 12.48 hrs HW=680.81' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

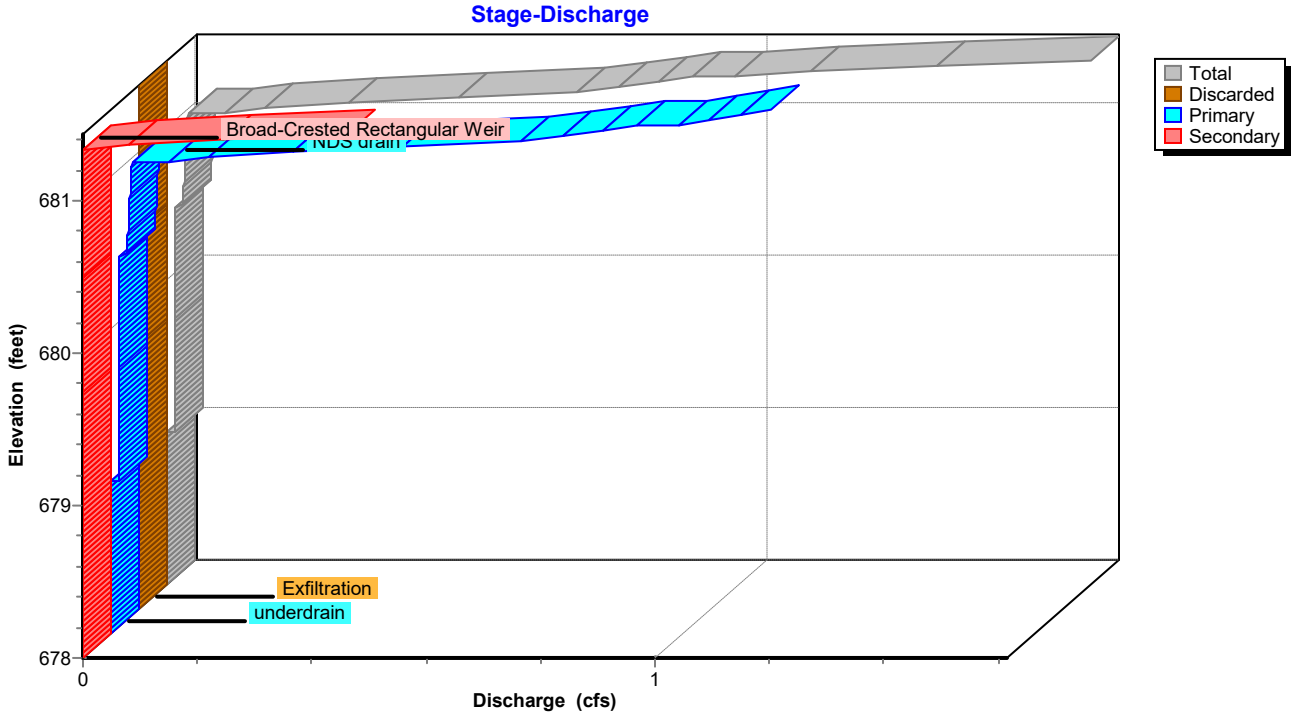
Primary OutFlow Max=0.03 cfs @ 12.48 hrs HW=680.81' (Free Discharge)
├**2=NDS drain** (Controls 0.00 cfs)
└**3=underdrain** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=678.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

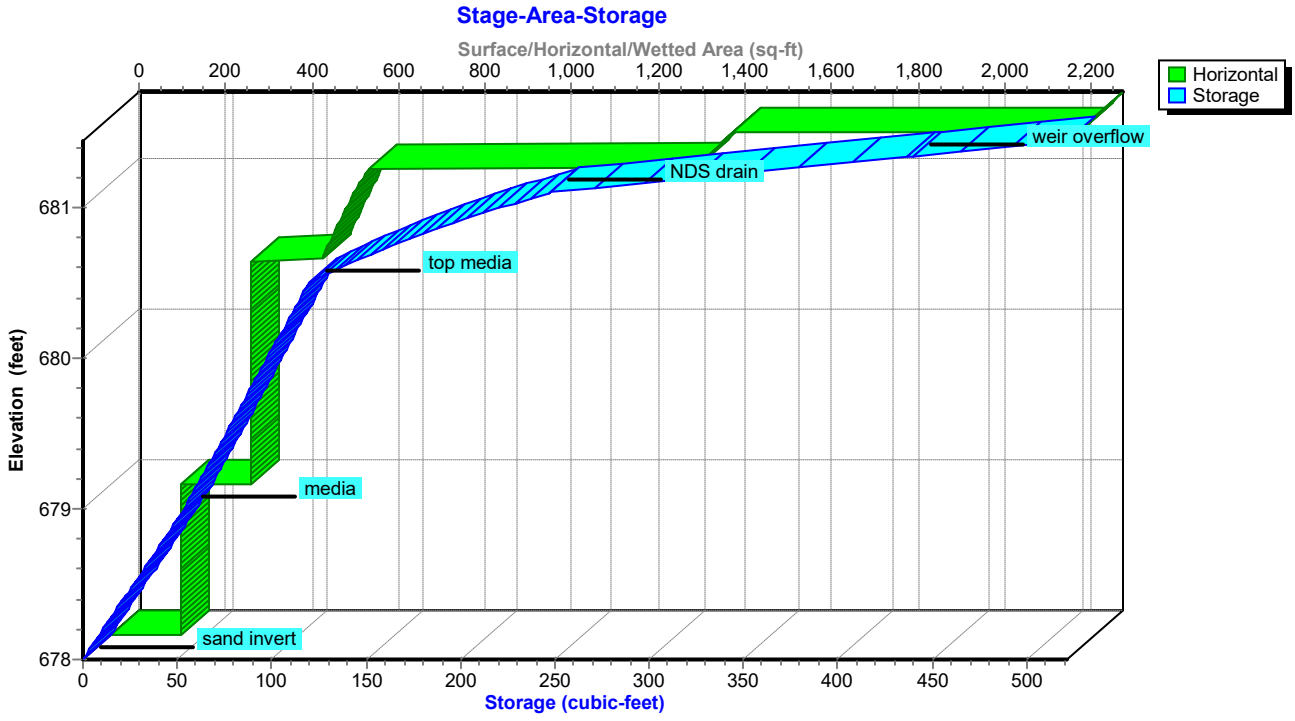
Pond 3P: E biofilter LINED



Pond 3P: E biofilter LINED



Pond 3P: E biofilter LINED



Hydrograph for Pond 3P: E biofilter LINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.00	0	678.00	0.00	0.00	0.00	**0.00**
5.50	0.00	2	678.04	0.00	0.00	0.00	0.00
6.00	0.00	5	678.09	0.00	0.00	0.00	0.00
6.50	0.00	7	678.14	0.00	0.00	0.00	0.00
7.00	0.00	10	678.19	0.00	0.00	0.00	0.00
7.50	0.00	14	678.25	0.00	0.00	0.00	0.00
8.00	0.00	17	678.32	0.00	0.00	0.00	0.00
8.50	0.00	21	678.39	0.00	0.00	0.00	0.00
9.00	0.00	25	678.46	0.00	0.00	0.00	0.00
9.50	0.00	31	678.57	0.00	0.00	0.00	0.00
10.00	0.00	38	678.70	0.00	0.00	0.00	0.00
10.50	0.00	45	678.84	0.00	0.00	0.00	0.00
11.00	0.01	54	679.00	0.01	0.00	0.01	0.00
11.50	0.01	54	679.00	0.01	0.00	0.01	0.00
12.00	**0.07**	79	679.58	0.01	0.00	0.01	0.00
12.50	**0.03**	**178**	**680.81**	**0.03**	**0.00**	**0.03**	0.00
13.00	0.01	155	680.70	0.03	0.00	0.03	0.00
13.50	0.01	123	680.52	0.03	0.00	0.03	0.00
14.00	0.01	106	680.19	0.01	0.00	0.01	0.00
14.50	0.01	91	679.85	0.01	0.00	0.01	0.00
15.00	0.01	76	679.50	0.01	0.00	0.01	0.00
15.50	0.00	58	679.09	0.01	0.00	0.01	0.00
16.00	0.00	54	679.00	0.00	0.00	0.00	0.00
16.50	0.00	54	679.00	0.00	0.00	0.00	0.00
17.00	0.00	54	679.00	0.00	0.00	0.00	0.00
17.50	0.00	54	679.00	0.00	0.00	0.00	0.00
18.00	0.00	54	679.00	0.00	0.00	0.00	0.00
18.50	0.00	54	679.00	0.00	0.00	0.00	0.00
19.00	0.00	54	679.00	0.00	0.00	0.00	0.00
19.50	0.00	54	679.00	0.00	0.00	0.00	0.00
20.00	0.00	54	679.00	0.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: E biofilter LINED

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
678.00	0.00	0.00	0.00	0.00
678.10	0.00	0.00	0.00	0.00
678.20	0.00	0.00	0.00	0.00
678.30	0.00	0.00	0.00	0.00
678.40	0.00	0.00	0.00	0.00
678.50	0.00	0.00	0.00	0.00
678.60	0.00	0.00	0.00	0.00
678.70	0.00	0.00	0.00	0.00
678.80	0.00	0.00	0.00	0.00
678.90	0.00	0.00	0.00	0.00
679.00	0.01	0.00	0.01	0.00
679.10	0.01	0.00	0.01	0.00
679.20	0.01	0.00	0.01	0.00
679.30	0.01	0.00	0.01	0.00
679.40	0.01	0.00	0.01	0.00
679.50	0.01	0.00	0.01	0.00
679.60	0.01	0.00	0.01	0.00
679.70	0.01	0.00	0.01	0.00
679.80	0.01	0.00	0.01	0.00
679.90	0.01	0.00	0.01	0.00
680.00	0.01	0.00	0.01	0.00
680.10	0.01	0.00	0.01	0.00
680.20	0.01	0.00	0.01	0.00
680.30	0.01	0.00	0.01	0.00
680.40	0.01	0.00	0.01	0.00
680.50	0.03	0.00	0.03	0.00
680.60	0.03	0.00	0.03	0.00
680.70	0.03	0.00	0.03	0.00
680.80	0.03	0.00	0.03	0.00
680.90	0.03	0.00	0.03	0.00
681.00	0.04	0.00	0.04	0.00
681.10	0.10	0.00	0.10	0.00
681.20	0.52	0.00	0.52	0.00
681.30	0.85	0.00	0.85	0.00
681.40	**1.31**	**0.00**	**1.09**	**0.22**

Stage-Area-Storage for Pond 3P: E biofilter LINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
678.00	163	0
678.05	163	3
678.10	163	5
678.15	163	8
678.20	163	11
678.25	163	13
678.30	163	16
678.35	163	19
678.40	163	21
678.45	163	24
678.50	163	27
678.55	163	30
678.60	163	32
678.65	163	35
678.70	163	38
678.75	163	40
678.80	163	43
678.85	163	46
678.90	163	48
678.95	163	51
679.00	326	54
679.05	326	56
679.10	326	58
679.15	326	60
679.20	326	62
679.25	326	65
679.30	326	67
679.35	326	69
679.40	326	71
679.45	326	73
679.50	326	76
679.55	326	78
679.60	326	80
679.65	326	82
679.70	326	84
679.75	326	87
679.80	326	89
679.85	326	91
679.90	326	93
679.95	326	95
680.00	326	98
680.05	326	100
680.10	326	102
680.15	326	104
680.20	326	106
680.25	326	109
680.30	326	111
680.35	326	113
680.40	326	115
680.45	326	117
680.50	488	120
680.55	496	128
680.60	504	137
680.65	512	146
680.70	521	155
680.75	530	165
680.80	538	176
680.85	547	187
680.90	556	198
680.95	566	210
681.00	575	222
681.05	585	235
681.10	1,350	248
681.15	1,368	286
681.20	1,386	325
681.25	1,404	365
681.30	1,422	406
681.35	2,240	448
681.40	**2,258**	**488**

Summary for Pond 5P: W biofillter UNLINED

[82] Warning: Early inflow requires earlier time span
[93] Warning: Storage range exceeded by 0.07'
[88] Warning: Qout>Qin may require smaller dt or Finer Routing
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)

Inflow Area = 0.673 ac, 43.54% Impervious, Inflow Depth > 2.19" for 10-Year event
Inflow = 0.98 cfs @ 12.41 hrs, Volume= 0.123 af
Outflow = 1.31 cfs @ 12.40 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.40 hrs, Volume= 0.001 af
Primary = 0.74 cfs @ 12.40 hrs, Volume= 0.093 af
Secondary = 0.57 cfs @ 12.40 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 676.23' @ 12.40 hrs Surf.Area= 2,824 sf Storage= 1,047 cf

Plug-Flow detention time= 92.0 min calculated for 0.108 af (88% of inflow)
Center-of-Mass det. time= 54.3 min (825.6 - 771.3)

Volume	Invert	Avail.Storage	Storage Description
#1	671.75'	107 cf	**8.30'W x 39.20'L x 1.00'H sand invert** 325 cf Overall x 33.0% Voids
#2	672.75'	176 cf	**8.30'W x 39.20'L x 2.00'H media** 651 cf Overall x 27.0% Voids
#3	674.75'	728 cf	**8.30'W x 39.20'L x 1.35'H top media Z=3.0**
#4	676.10'	27 cf	**12.30'W x 43.20'L x 0.05'H NDS drain Z=3.0**
#5	676.15'	8 cf	**18.00'W x 47.00'L x 0.01'H weir overflow Z=3.0**
		1,047 cf	Total Available Storage

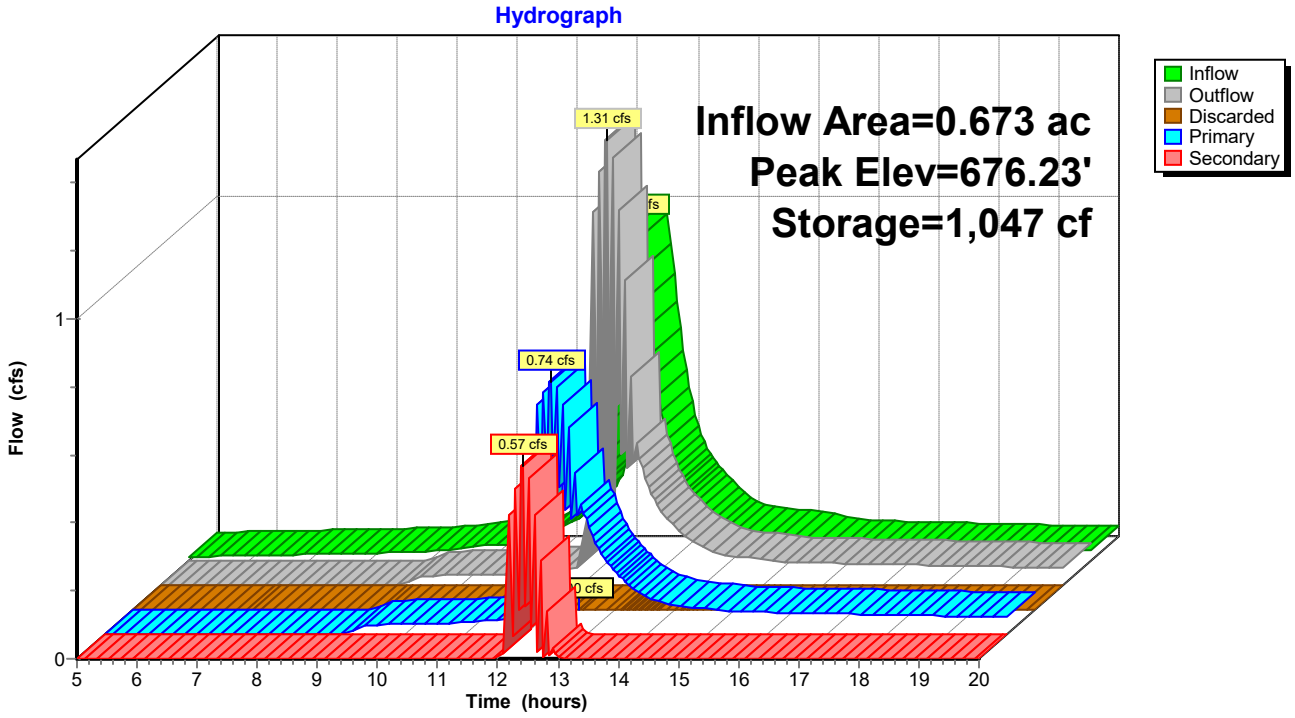
Device	Routing	Invert	Outlet Devices
#1	Secondary	676.15'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Primary	676.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	672.75'	**3.600 in/hr underdrain over Horizontal area above 672.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 651 sf Phase-In= 0.50'
#4	Discarded	671.75'	**0.030 in/hr Exfiltration over Horizontal area above 671.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 325 sf Phase-In= 0.50'

Discarded OutFlow Max=0.00 cfs @ 12.40 hrs HW=676.23' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

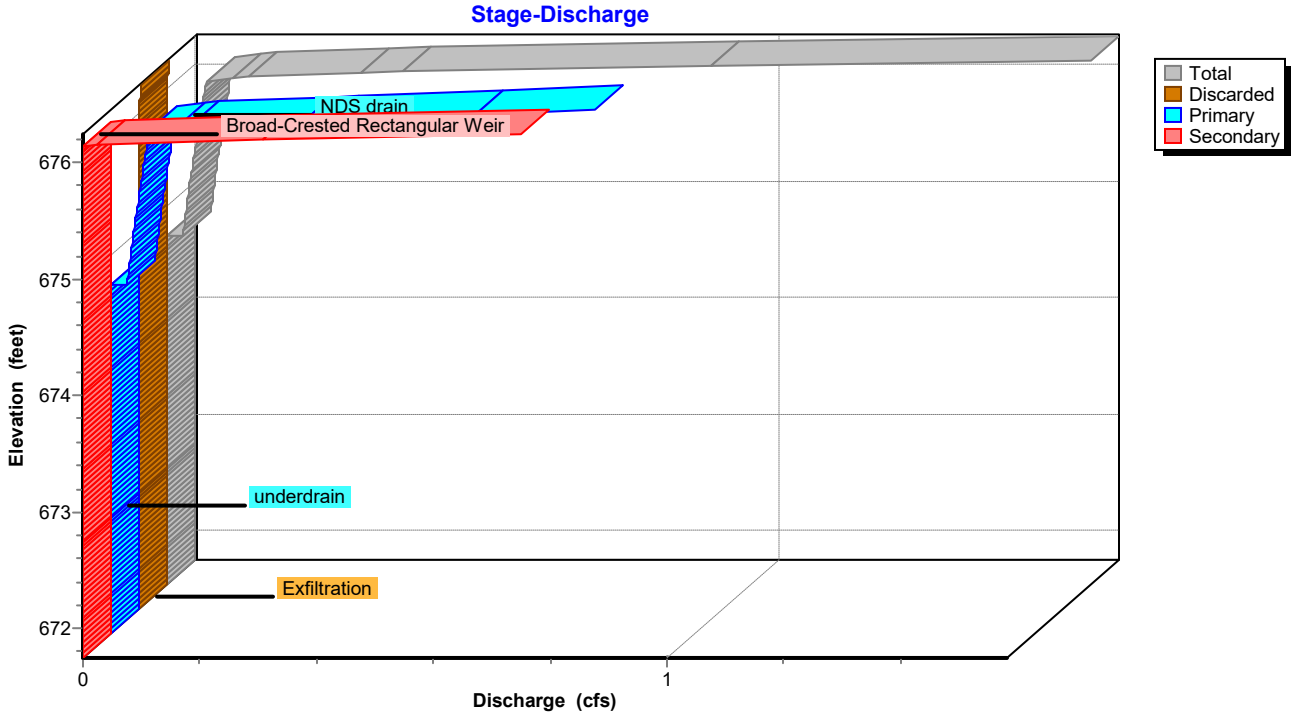
Primary OutFlow Max=0.79 cfs @ 12.40 hrs HW=676.23' (Free Discharge)
└**2=NDS drain** (Orifice Controls 0.60 cfs @ 1.73 fps)
└**3=underdrain** (Controls 0.18 cfs)

Secondary OutFlow Max=0.55 cfs @ 12.40 hrs HW=676.23' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.55 cfs @ 0.69 fps)

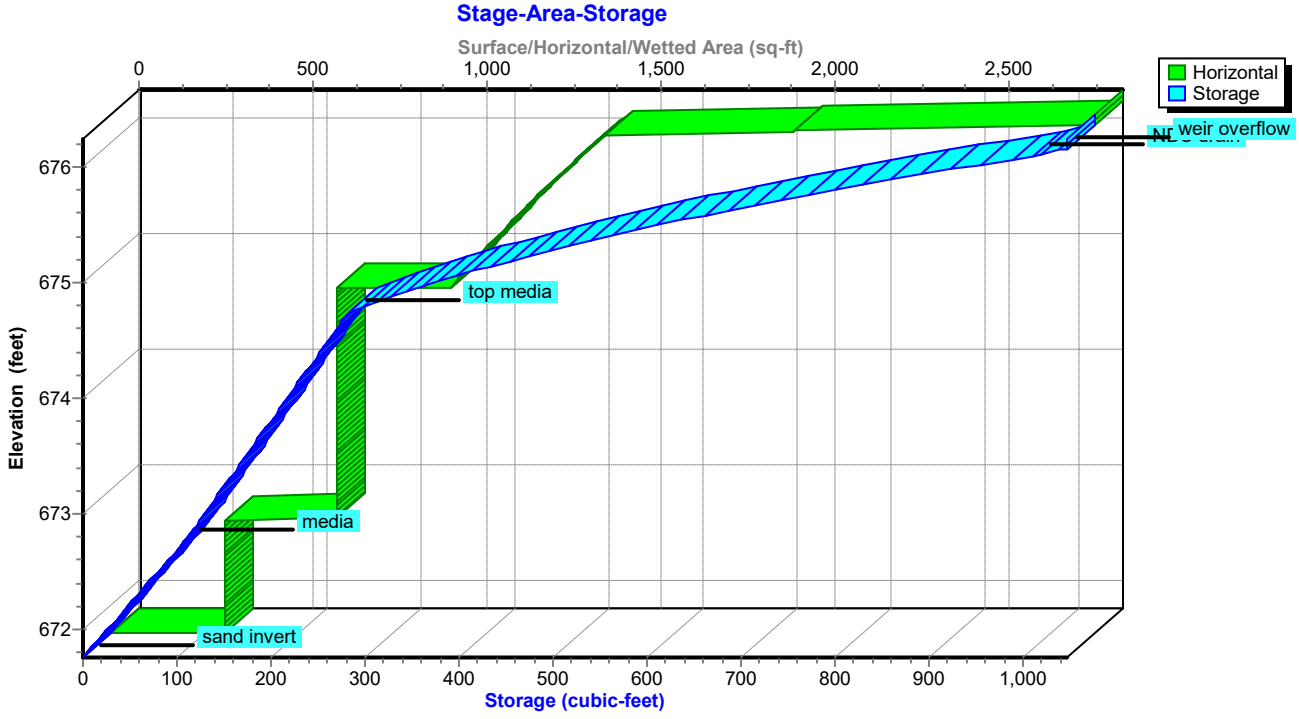
Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Hydrograph for Pond 5P: W biofillter UNLINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.01	1	671.76	0.00	0.00	0.00	0.00
5.50	0.01	23	671.97	0.00	0.00	0.00	0.00
6.00	0.02	49	672.20	0.00	0.00	0.00	0.00
6.50	0.02	78	672.47	0.00	0.00	0.00	0.00
7.00	0.02	110	672.78	0.00	0.00	0.00	0.00
7.50	0.02	145	673.18	0.00	0.00	0.00	0.00
8.00	0.02	183	673.61	0.00	0.00	0.00	0.00
8.50	0.02	225	674.08	0.00	0.00	0.00	0.00
9.00	0.03	269	674.59	0.00	0.00	0.00	0.00
9.50	0.04	292	674.78	0.03	0.00	0.03	0.00
10.00	0.04	315	674.84	0.03	0.00	0.03	0.00
10.50	0.05	344	674.92	0.03	0.00	0.03	0.00
11.00	0.08	394	675.05	0.04	0.00	0.03	0.00
11.50	0.12	508	675.30	0.04	0.00	0.04	0.00
12.00	**0.41**	**792**	**675.79**	**0.06**	**0.00**	**0.06**	**0.00**
12.50	**0.93**	**1,047**	**676.23**	**1.26**	**0.00**	**0.73**	**0.53**
13.00	0.33	1,040	676.15	0.35	0.00	0.34	0.01
13.50	0.18	1,024	676.12	0.18	0.00	0.18	0.00
14.00	0.10	1,011	676.10	0.11	0.00	0.11	0.00
14.50	0.08	998	676.08	0.08	0.00	0.08	0.00
15.00	0.08	995	676.08	0.08	0.00	0.08	0.00
15.50	0.05	986	676.07	0.07	0.00	0.07	0.00
16.00	0.05	955	676.03	0.07	0.00	0.06	0.00
16.50	0.04	920	675.98	0.06	0.00	0.06	0.00
17.00	0.04	883	675.93	0.06	0.00	0.06	0.00
17.50	0.04	845	675.87	0.06	0.00	0.06	0.00
18.00	0.04	807	675.82	0.06	0.00	0.06	0.00
18.50	0.03	769	675.76	0.06	0.00	0.06	0.00
19.00	0.03	730	675.70	0.05	0.00	0.05	0.00
19.50	0.03	691	675.63	0.05	0.00	0.05	0.00
20.00	0.03	651	675.57	0.05	0.00	0.05	0.00

Stage-Discharge for Pond 5P: W biofillter UNLINED

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
671.75	0.00	0.00	0.00	0.00
671.85	0.00	0.00	0.00	0.00
671.95	0.00	0.00	0.00	0.00
672.05	0.00	0.00	0.00	0.00
672.15	0.00	0.00	0.00	0.00
672.25	0.00	0.00	0.00	0.00
672.35	0.00	0.00	0.00	0.00
672.45	0.00	0.00	0.00	0.00
672.55	0.00	0.00	0.00	0.00
672.65	0.00	0.00	0.00	0.00
672.75	0.00	0.00	0.00	0.00
672.85	0.00	0.00	0.00	0.00
672.95	0.00	0.00	0.00	0.00
673.05	0.00	0.00	0.00	0.00
673.15	0.00	0.00	0.00	0.00
673.25	0.00	0.00	0.00	0.00
673.35	0.00	0.00	0.00	0.00
673.45	0.00	0.00	0.00	0.00
673.55	0.00	0.00	0.00	0.00
673.65	0.00	0.00	0.00	0.00
673.75	0.00	0.00	0.00	0.00
673.85	0.00	0.00	0.00	0.00
673.95	0.00	0.00	0.00	0.00
674.05	0.00	0.00	0.00	0.00
674.15	0.00	0.00	0.00	0.00
674.25	0.00	0.00	0.00	0.00
674.35	0.00	0.00	0.00	0.00
674.45	0.00	0.00	0.00	0.00
674.55	0.00	0.00	0.00	0.00
674.65	0.00	0.00	0.00	0.00
674.75	0.03	0.00	0.03	0.00
674.85	0.03	0.00	0.03	0.00
674.95	0.03	0.00	0.03	0.00
675.05	0.04	0.00	0.03	0.00
675.15	0.04	0.00	0.04	0.00
675.25	0.04	0.00	0.04	0.00
675.35	0.04	0.00	0.04	0.00
675.45	0.05	0.00	0.05	0.00
675.55	0.05	0.00	0.05	0.00
675.65	0.05	0.00	0.05	0.00
675.75	0.06	0.00	0.06	0.00
675.85	0.06	0.00	0.06	0.00
675.95	0.06	0.00	0.06	0.00
676.05	0.07	0.00	0.07	0.00
676.15	0.33	0.00	0.33	0.00
676.25	**1.61**	**0.00**	**0.83**	**0.77**

Stage-Area-Storage for Pond 5P: W biofillter UNLINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
671.75	325	0
671.80	325	5
671.85	325	11
671.90	325	16
671.95	325	21
672.00	325	27
672.05	325	32
672.10	325	38
672.15	325	43
672.20	325	48
672.25	325	54
672.30	325	59
672.35	325	64
672.40	325	70
672.45	325	75
672.50	325	81
672.55	325	86
672.60	325	91
672.65	325	97
672.70	325	102
672.75	651	107
672.80	651	112
672.85	651	116
672.90	651	121
672.95	651	125
673.00	651	129
673.05	651	134
673.10	651	138
673.15	651	143
673.20	651	147
673.25	651	151
673.30	651	156
673.35	651	160
673.40	651	164
673.45	651	169
673.50	651	173
673.55	651	178
673.60	651	182
673.65	651	186
673.70	651	191
673.75	651	195
673.80	651	200
673.85	651	204
673.90	651	208
673.95	651	213
674.00	651	217
674.05	651	222
674.10	651	226
674.15	651	230
674.20	651	235
674.25	651	239
674.30	651	244
674.35	651	248
674.40	651	252
674.45	651	257
674.50	651	261
674.55	651	265
674.60	651	270
674.65	651	274
674.70	651	279
674.75	976	283
674.80	990	300
674.85	1,005	317
674.90	1,020	335
674.95	1,035	354
675.00	1,050	373
675.05	1,065	394
675.10	1,080	415
675.15	1,096	437
675.20	1,112	459
675.25	1,128	483
675.30	1,144	507
675.35	1,160	532
675.40	1,177	558
675.45	1,193	585
675.50	1,210	612
675.55	1,227	641
675.60	1,244	670
675.65	1,262	700
675.70	1,279	731
675.75	1,297	763
675.80	1,315	796
675.85	1,333	829
675.90	1,351	864
675.95	1,370	899
676.00	1,389	936
676.05	1,407	973
676.10	1,958	1,012
676.15	**2,821**	**1,039**
676.20	**2,824**	**1,047**
676.25	2,824	1,047

Summary for Pond 7P: 48" UG storage

Inflow Area = 0.730 ac, 45.41% Impervious, Inflow Depth > 1.74" for 10-Year event
Inflow = 0.79 cfs @ 12.40 hrs, Volume= 0.106 af
Outflow = 0.60 cfs @ 12.57 hrs, Volume= 0.105 af, Atten= 24%, Lag= 10.1 min
Primary = 0.60 cfs @ 12.57 hrs, Volume= 0.105 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 671.38' @ 12.57 hrs Surf.Area= 193 sf Storage= 214 cf

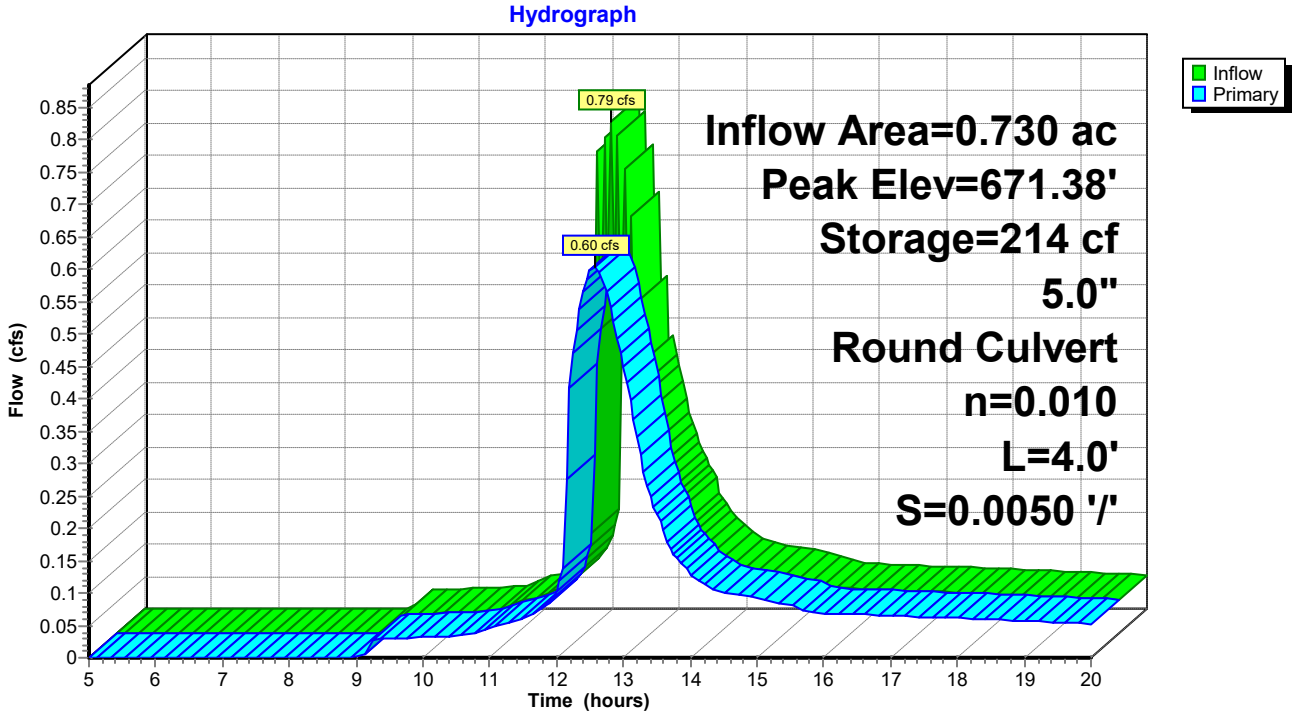
Plug-Flow detention time= 3.1 min calculated for 0.105 af (100% of inflow)
Center-of-Mass det. time= 2.7 min (834.7 - 832.0)

Volume	Invert	Avail.Storage	Storage Description
#1	669.82'	628 cf	**48.0" Round Pipe Storage** L= 50.0' S= 0.0026 '/'

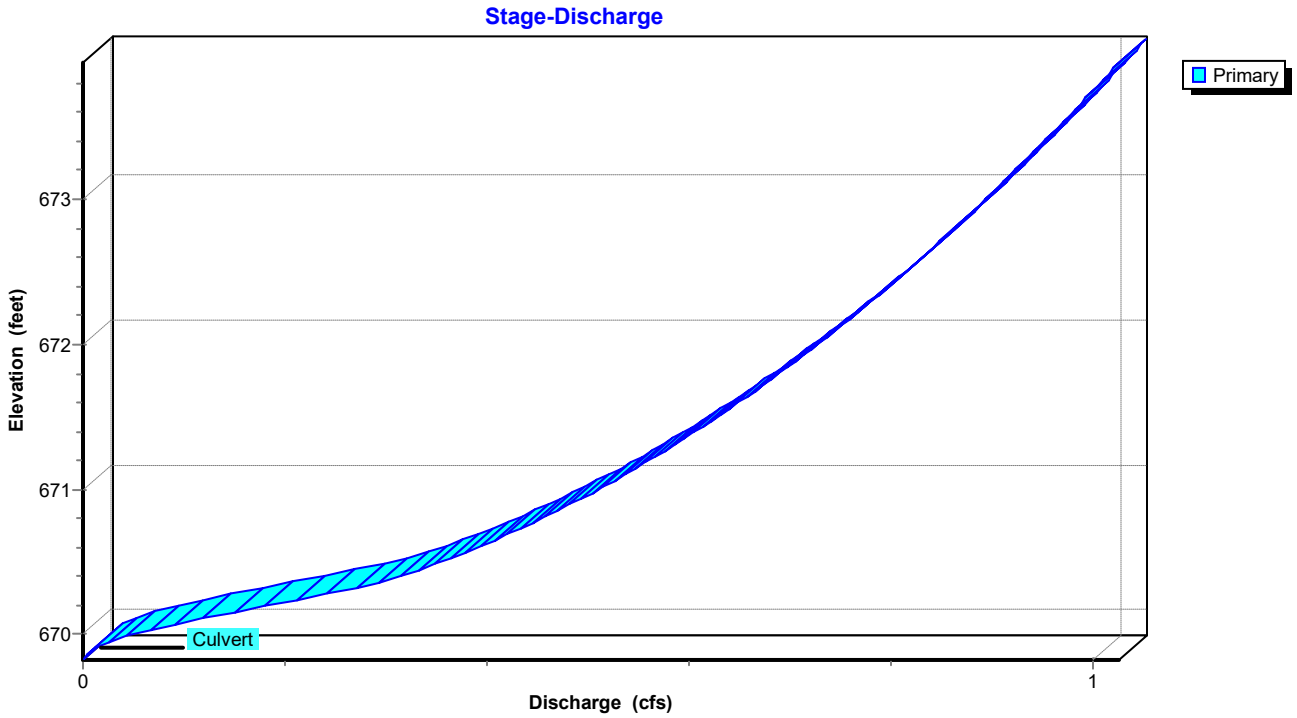
Device	Routing	Invert	Outlet Devices
#1	Primary	669.82'	**5.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 669.82' / 669.80' S= 0.0050 '/' Cc= 0.900 n= 0.010, Flow Area= 0.14 sf

Primary OutFlow Max=0.60 cfs @ 12.57 hrs HW=671.38' (Free Discharge)
1=Culvert (Inlet Controls 0.60 cfs @ 4.41 fps)

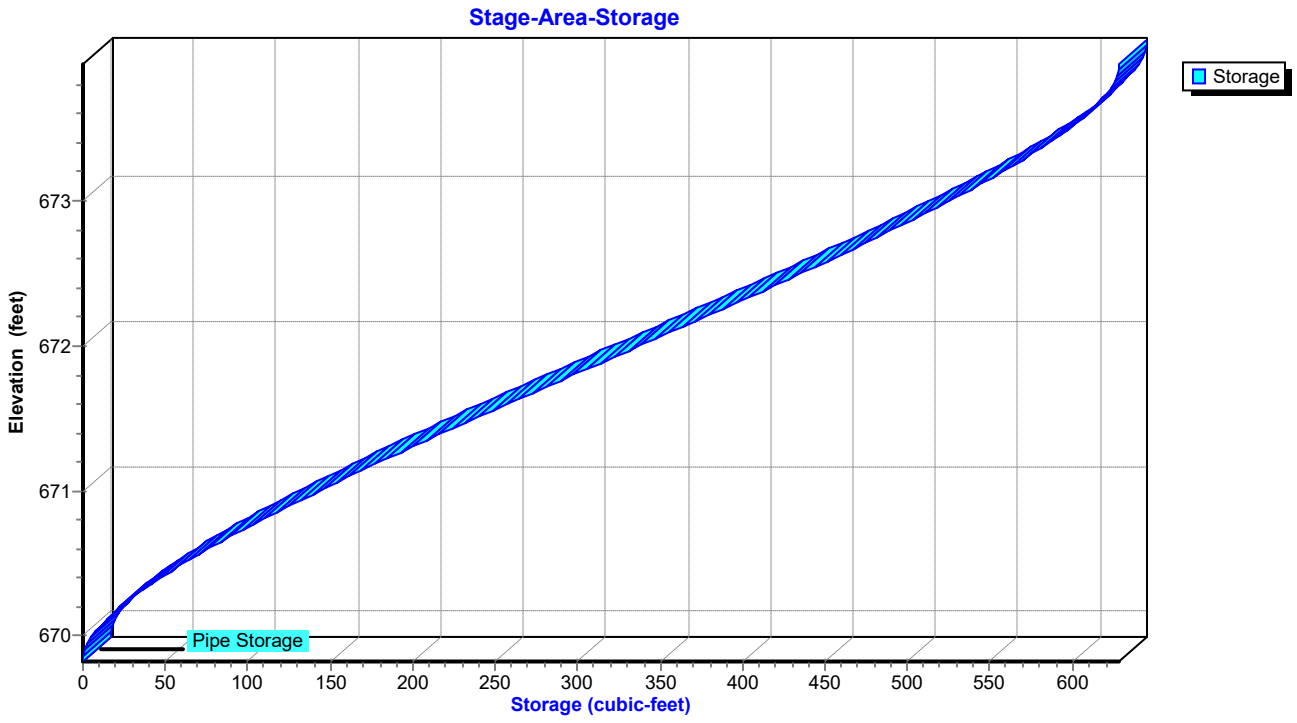
Pond 7P: 48" UG storage



Pond 7P: 48" UG storage



Pond 7P: 48" UG storage



Hydrograph for Pond 7P: 48" UG storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
5.00	0.00	0	669.82	0.00
5.50	0.00	0	669.83	0.00
6.00	0.00	0	669.83	0.00
6.50	0.00	0	669.83	0.00
7.00	0.00	0	669.83	0.00
7.50	0.00	0	669.83	0.00
8.00	0.00	0	669.83	0.00
8.50	0.00	0	669.84	0.00
9.00	0.00	0	669.84	0.00
9.50	0.03	3	669.95	0.03
10.00	0.03	3	669.96	0.03
10.50	0.03	3	669.96	0.03
11.00	0.05	5	669.99	0.05
11.50	0.06	6	670.02	0.06
12.00	**0.11**	12	670.09	0.10
12.50	**0.77**	**210**	**671.36**	**0.60**
13.00	0.38	**105**	**670.78**	**0.45**
13.50	0.21	28	670.25	0.22
14.00	0.13	16	670.12	0.13
14.50	0.10	12	670.08	0.10
15.00	0.09	11	670.07	0.09
15.50	0.08	9	670.05	0.08
16.00	0.07	8	670.03	0.07
16.50	0.07	7	670.03	0.07
17.00	0.07	7	670.02	0.07
17.50	0.06	7	670.02	0.06
18.00	0.06	7	670.02	0.06
18.50	0.06	6	670.01	0.06
19.00	0.06	6	670.01	0.06
19.50	0.05	6	670.00	0.05
20.00	0.05	5	670.00	0.05

Stage-Discharge for Pond 7P: 48" UG storage

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
669.82	0.00	672.37	0.79
669.87	0.00	672.42	0.80
669.92	0.02	672.47	0.81
669.97	0.04	672.52	0.82
670.02	0.06	672.57	0.83
670.07	0.09	672.62	0.83
670.12	0.13	672.67	0.84
670.17	0.16	672.72	0.85
670.22	0.20	672.77	0.86
670.27	0.24	672.82	0.87
670.32	0.27	672.87	0.87
670.37	0.30	672.92	0.88
670.42	0.32	672.97	0.89
670.47	0.34	673.02	0.90
670.52	0.36	673.07	0.90
670.57	0.38	673.12	0.91
670.62	0.40	673.17	0.92
670.67	0.42	673.22	0.93
670.72	0.43	673.27	0.93
670.77	0.45	673.32	0.94
670.82	0.46	673.37	0.95
670.87	0.48	673.42	0.95
670.92	0.49	673.47	0.96
670.97	0.50	673.52	0.97
671.02	0.52	673.57	0.98
671.07	0.53	673.62	0.98
671.12	0.54	673.67	0.99
671.17	0.55	673.72	1.00
671.22	0.57	673.77	1.00
671.27	0.58	673.82	1.01
671.32	0.59	673.87	1.02
671.37	0.60	673.92	**1.02**
671.42	0.61		
671.47	0.62		
671.52	0.63		
671.57	0.64		
671.62	0.65		
671.67	0.66		
671.72	0.67		
671.77	0.68		
671.82	0.69		
671.87	0.70		
671.92	0.71		
671.97	0.72		
672.02	0.73		
672.07	0.74		
672.12	0.75		
672.17	0.76		
672.22	0.77		
672.27	0.78		
672.32	0.78		

Stage-Area-Storage for Pond 7P: 48" UG storage

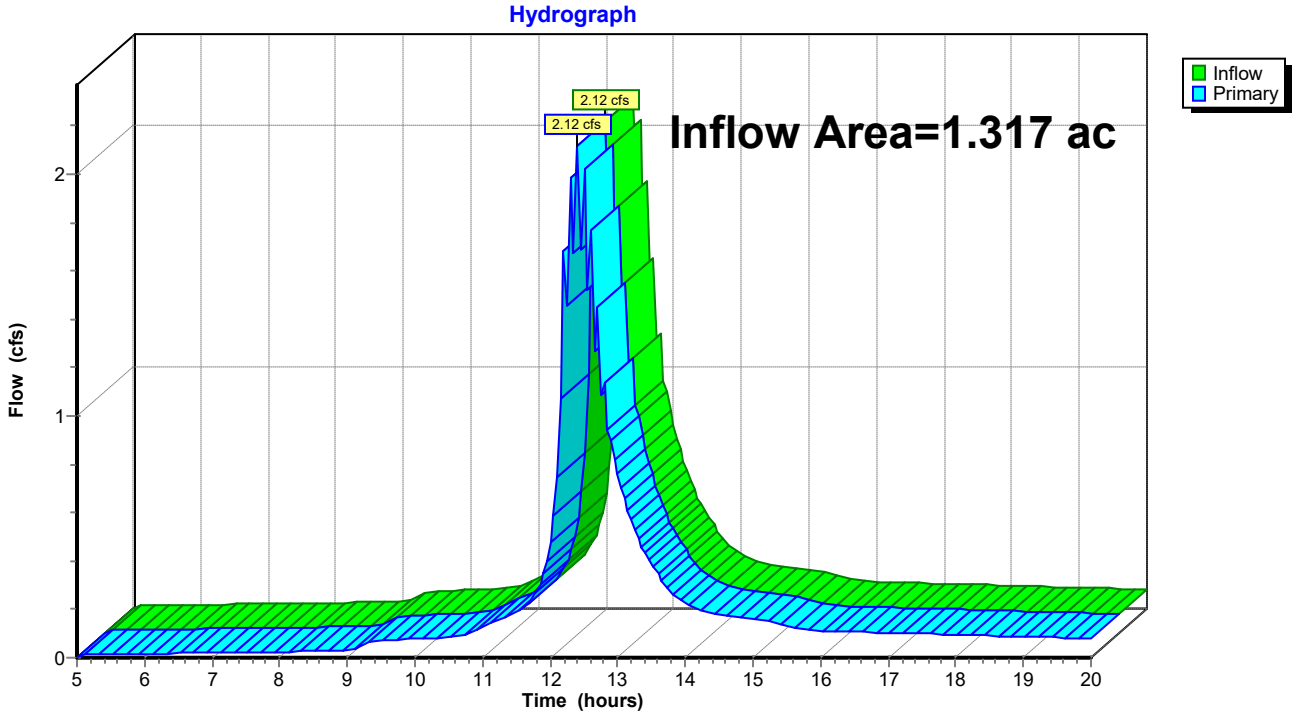
Elevation (feet)	Storage (cubic-feet)
669.82	0
669.87	0
669.92	1
669.97	4
670.02	7
670.07	11
670.12	15
670.17	20
670.22	25
670.27	31
670.32	37
670.37	43
670.42	50
670.47	57
670.52	64
670.57	72
670.62	79
670.67	87
670.72	95
670.77	103
670.82	112
670.87	120
670.92	129
670.97	138
671.02	147
671.07	156
671.12	165
671.17	174
671.22	184
671.27	193
671.32	203
671.37	212
671.42	222
671.47	232
671.52	242
671.57	251
671.62	261
671.67	271
671.72	281
671.77	291
671.82	301
671.87	311
671.92	321
671.97	331
672.02	341
672.07	351
672.12	361
672.17	371
672.22	381
672.27	391
672.32	400
672.37	410
672.42	420
672.47	429
672.52	439
672.57	448
672.62	458
672.67	467
672.72	476
672.77	485
672.82	494
672.87	503
672.92	511
672.97	520
673.02	528
673.07	536
673.12	544
673.17	552
673.22	560
673.27	567
673.32	574
673.37	581
673.42	587
673.47	594
673.52	600
673.57	605
673.62	610
673.67	615
673.72	619
673.77	623
673.82	626
673.87	628
673.92	**628**

Summary for Link 2L: (new Link)

Inflow Area = 1.317 ac, 48.47% Impervious, Inflow Depth > 2.18" for 10-Year event
Inflow = 2.12 cfs @ 12.40 hrs, Volume= 0.239 af
Primary = 2.12 cfs @ 12.40 hrs, Volume= 0.239 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: (new Link)



Hydrograph for Link 2L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00
5.25	0.01	0.00	0.01
5.50	0.01	0.00	0.01
5.75	0.02	0.00	0.02
6.00	0.02	0.00	0.02
6.25	0.02	0.00	0.02
6.50	0.02	0.00	0.02
6.75	0.02	0.00	0.02
7.00	0.02	0.00	0.02
7.25	0.02	0.00	0.02
7.50	0.02	0.00	0.02
7.75	0.02	0.00	0.02
8.00	0.02	0.00	0.02
8.25	0.03	0.00	0.03
8.50	0.03	0.00	0.03
8.75	0.03	0.00	0.03
9.00	0.03	0.00	0.03
9.25	0.06	0.00	0.06
9.50	0.07	0.00	0.07
9.75	0.07	0.00	0.07
10.00	0.08	0.00	0.08
10.25	0.08	0.00	0.08
10.50	0.08	0.00	0.08
10.75	0.10	0.00	0.10
11.00	0.13	0.00	0.13
11.25	0.16	0.00	0.16
11.50	0.19	0.00	0.19
11.75	0.25	0.00	0.25
12.00	0.48	0.00	0.48
12.25	**1.46**	0.00	**1.46**
12.50	**2.02**	0.00	**2.02**
12.75	1.08	0.00	1.08
13.00	0.76	0.00	0.76
13.25	0.53	0.00	0.53
13.50	0.39	0.00	0.39
13.75	0.28	0.00	0.28
14.00	0.22	0.00	0.22
14.25	0.19	0.00	0.19
14.50	0.18	0.00	0.18
14.75	0.17	0.00	0.17
15.00	0.16	0.00	0.16
15.25	0.15	0.00	0.15
15.50	0.13	0.00	0.13
15.75	0.12	0.00	0.12
16.00	0.11	0.00	0.11
16.25	0.11	0.00	0.11
16.50	0.11	0.00	0.11
16.75	0.11	0.00	0.11
17.00	0.10	0.00	0.10
17.25	0.10	0.00	0.10
17.50	0.10	0.00	0.10
17.75	0.10	0.00	0.10
18.00	0.10	0.00	0.10
18.25	0.09	0.00	0.09
18.50	0.09	0.00	0.09
18.75	0.09	0.00	0.09
19.00	0.09	0.00	0.09
19.25	0.09	0.00	0.09
19.50	0.08	0.00	0.08
19.75	0.08	0.00	0.08
20.00	0.08	0.00	0.08

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: To E Biofilter Runoff Area=1,875 sf 57.33% Impervious Runoff Depth>5.00"
Flow Length=25' Tc=8.0 min CN=WQ Runoff=0.29 cfs 0.018 af

Subcatchment 3S: to curb inlet Runoff Area=24,840 sf 40.58% Impervious Runoff Depth>4.32"
Flow Length=300' Tc=30.0 min CN=WQ Runoff=1.93 cfs 0.205 af

Subcatchment 4S: to W biofilter Runoff Area=4,490 sf 59.91% Impervious Runoff Depth>5.10"
Flow Length=140' Tc=6.0 min CN=WQ Runoff=0.76 cfs 0.044 af

Subcatchment 5S: to NDS 13-14-15 Runoff Area=17,550 sf 54.13% Impervious Runoff Depth>4.85"
Flow Length=275' Tc=30.0 min CN=WQ Runoff=1.51 cfs 0.163 af

Subcatchment 6S: untreated Runoff Area=6,820 sf 39.15% Impervious Runoff Depth>4.28"
Flow Length=100' Tc=15.0 min CN=WQ Runoff=0.74 cfs 0.056 af

Subcatchment 7S: NW 1/4 roof Runoff Area=595 sf 100.00% Impervious Runoff Depth>6.66"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.13 cfs 0.008 af

Subcatchment 8S: S 1/2 roof Runoff Area=1,190 sf 100.00% Impervious Runoff Depth>6.66"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.26 cfs 0.015 af

Reach 3R: S. 8" PVC Avg. Flow Depth=0.67' Max Vel=3.67 fps Inflow=1.56 cfs 0.178 af
8.0" Round Pipe n=0.010 L=87.0' S=0.0052 '/' Capacity=1.13 cfs Outflow=1.17 cfs 0.178 af

Reach 4R: 6" PVC Avg. Flow Depth=0.33' Max Vel=14.97 fps Inflow=2.05 cfs 0.366 af
6.0" Round Pipe n=0.010 L=77.0' S=0.1335 '/' Capacity=2.67 cfs Outflow=2.05 cfs 0.366 af

Pond 3P: E biofilter LINED Peak Elev=681.13' Storage=272 cf Inflow=0.29 cfs 0.018 af
Discarded=0.00 cfs 0.000 af Primary=0.18 cfs 0.017 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.017 af

Pond 5P: W biofillter UNLINED Peak Elev=676.28' Storage=1,047 cf Inflow=2.09 cfs 0.249 af
Discarded=0.00 cfs 0.001 af Primary=0.90 cfs 0.164 af Secondary=1.19 cfs 0.062 af Outflow=2.09 cfs 0.227 af

Pond 7P: 48" UG storage Peak Elev=673.19' Storage=555 cf Inflow=1.07 cfs 0.188 af
5.0" Round Culvert n=0.010 L=4.0' S=0.0050 '/' Outflow=0.92 cfs 0.188 af

Link 2L: (new Link) Inflow=3.68 cfs 0.484 af
Primary=3.68 cfs 0.484 af

Total Runoff Area = 1.317 ac Runoff Volume = 0.509 af Average Runoff Depth = 4.63"
51.53% Pervious = 0.679 ac 48.47% Impervious = 0.638 ac

Summary for Subcatchment 1S: To E Biofilter

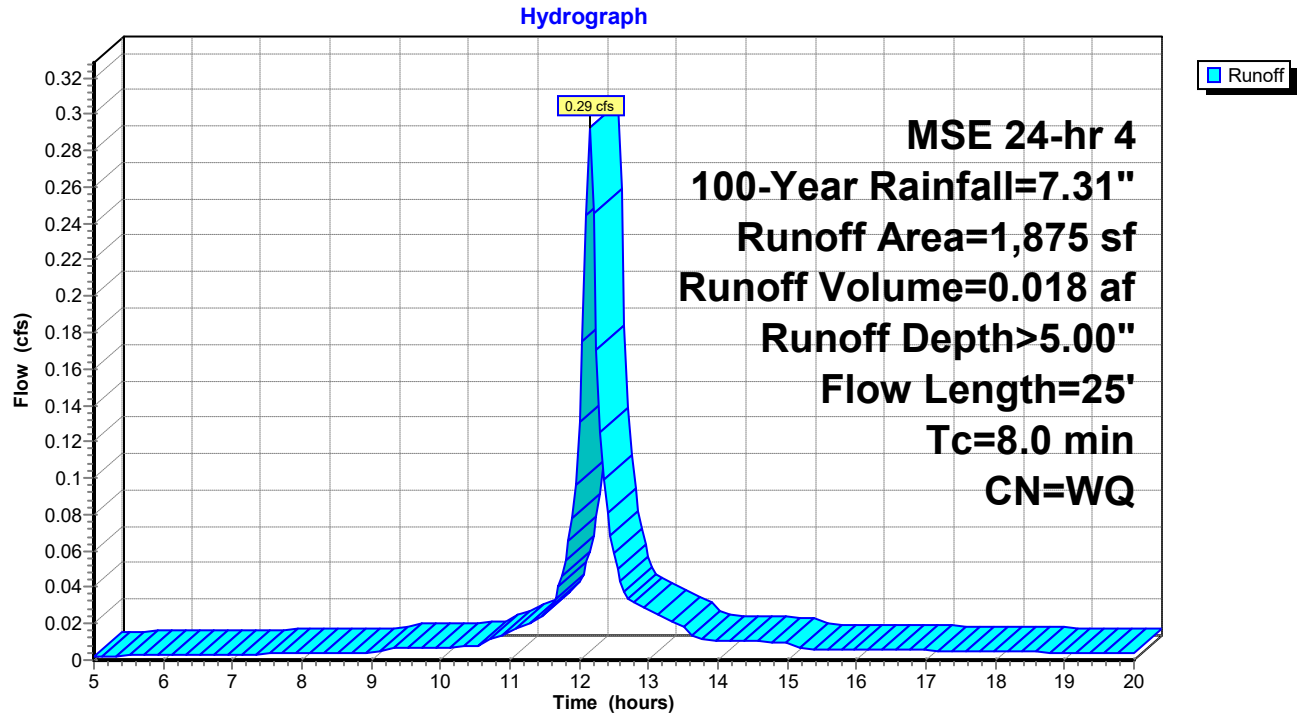
Runoff = 0.29 cfs @ 12.15 hrs, Volume= 0.018 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	800	61	lawn, HSG B, good
*	645	98	NE 1/4 roof
*	210	100	bio media
*	220	98	retain wall
	1,875		Weighted Average
	800		42.67% Pervious Area
	1,075		57.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	25		0.05		**Direct Entry, lawn above wall to E bio**

Subcatchment 1S: To E Biofilter



Hydrograph for Subcatchment 1S: To E Biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.00
5.25	0.36	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.45	0.00	0.00
6.25	0.48	0.00	0.00
6.50	0.51	0.00	0.00
6.75	0.55	0.00	0.00
7.00	0.58	0.01	0.00
7.25	0.61	0.01	0.00
7.50	0.65	0.02	0.00
7.75	0.69	0.03	0.00
8.00	0.72	0.03	0.00
8.25	0.76	0.04	0.00
8.50	0.80	0.05	0.00
8.75	0.84	0.06	0.00
9.00	0.88	0.08	0.00
9.25	0.95	0.10	0.01
9.50	1.02	0.12	0.01
9.75	1.09	0.15	0.01
10.00	1.16	0.18	0.01
10.25	1.23	0.21	0.01
10.50	1.31	0.25	0.01
10.75	1.43	0.31	0.01
11.00	1.58	0.39	0.02
11.25	1.77	0.50	0.02
11.50	1.98	0.64	0.02
11.75	2.40	0.92	0.05
12.00	3.43	1.72	**0.13**
12.25	4.91	3.00	**0.17**
12.50	5.33	3.37	0.06
12.75	5.54	3.57	0.03
13.00	5.73	3.74	0.03
13.25	5.88	3.88	0.02
13.50	6.00	3.99	0.02
13.75	6.08	4.06	0.01
14.00	6.15	4.13	0.01
14.25	6.22	4.19	0.01
14.50	6.29	4.26	0.01
14.75	6.36	4.32	0.01
15.00	6.43	4.38	0.01
15.25	6.47	4.42	0.01
15.50	6.51	4.46	0.01
15.75	6.55	4.49	0.01
16.00	6.59	4.53	0.01
16.25	6.62	4.56	0.01
16.50	6.66	4.60	0.01
16.75	6.70	4.63	0.01
17.00	6.73	4.66	0.01
17.25	6.76	4.70	0.01
17.50	6.80	4.73	0.01
17.75	6.83	4.76	0.00
18.00	6.86	4.79	0.00
18.25	6.89	4.81	0.00
18.50	6.92	4.84	0.00
18.75	6.95	4.87	0.00
19.00	6.97	4.89	0.00
19.25	7.00	4.92	0.00
19.50	7.03	4.94	0.00
19.75	7.05	4.96	0.00
20.00	**7.07**	**4.98**	0.00

Summary for Subcatchment 3S: to curb inlet

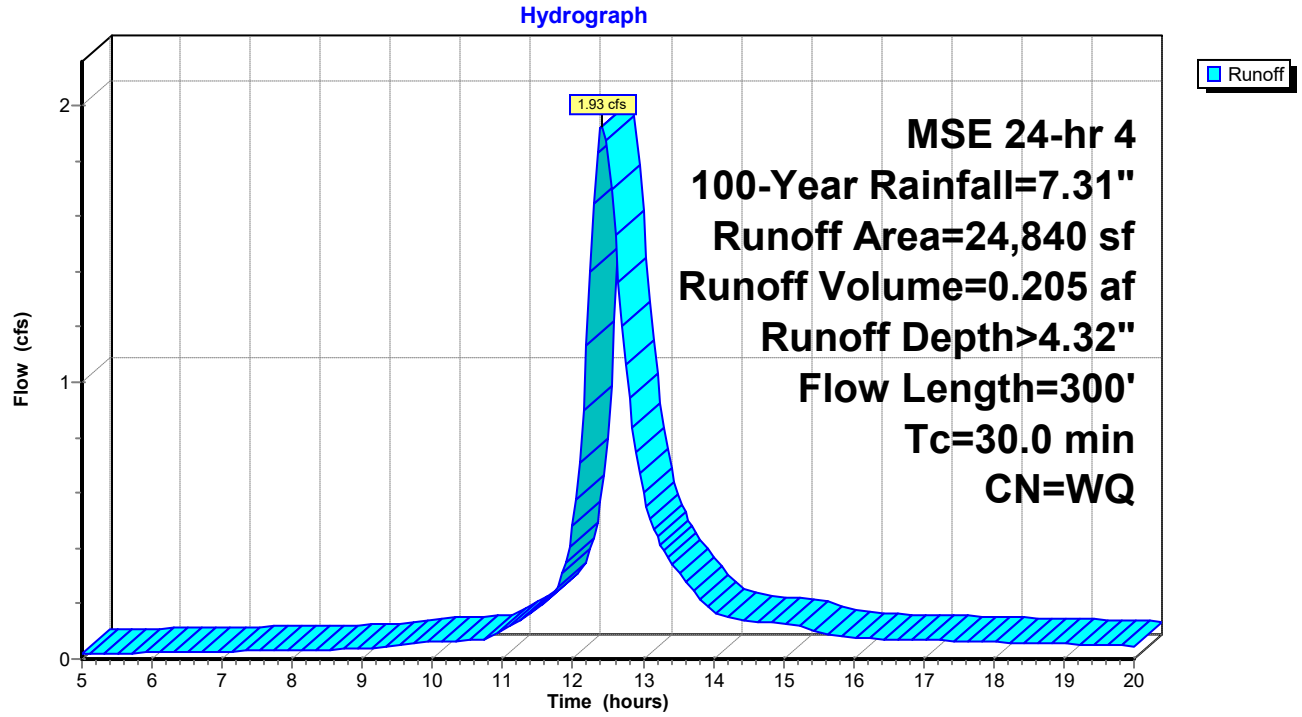
Runoff = 1.93 cfs @ 12.42 hrs, Volume= 0.205 af, Depth> 4.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	3,200	98	S part parking lot
*	160	98	SW
*	780	61	lawn, HSG B, good
*	780	61	lawn above wall
*	100	98	retain wall
*	2,000	61	lawn run on 1845
*	6,200	61	lawn run on 1835
*	2,120	98	roof+drive run on 1835
*	4,500	98	roof+drive run on 1825
*	5,000	61	lwan run on 1825
	24,840		Weighted Average
	14,760		59.42% Pervious Area
	10,080		40.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0	300		0.17		**Direct Entry, 1845 lawn run on**

Subcatchment 3S: to curb inlet



Hydrograph for Subcatchment 3S: to curb inlet

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.02
5.25	0.36	0.00	0.02
5.50	0.39	0.00	0.02
5.75	0.42	0.00	0.02
6.00	0.45	0.00	0.02
6.25	0.48	0.00	0.02
6.50	0.51	0.00	0.03
6.75	0.55	0.00	0.03
7.00	0.58	0.00	0.03
7.25	0.61	0.00	0.03
7.50	0.65	0.00	0.03
7.75	0.69	0.00	0.03
8.00	0.72	0.00	0.03
8.25	0.76	0.01	0.03
8.50	0.80	0.01	0.03
8.75	0.84	0.01	0.03
9.00	0.88	0.02	0.04
9.25	0.95	0.03	0.04
9.50	1.02	0.04	0.05
9.75	1.09	0.06	0.06
10.00	1.16	0.08	0.06
10.25	1.23	0.10	0.06
10.50	1.31	0.12	0.07
10.75	1.43	0.16	0.07
11.00	1.58	0.22	0.10
11.25	1.77	0.30	0.14
11.50	1.98	0.41	0.18
11.75	2.40	0.63	0.25
12.00	3.43	1.31	0.48
12.25	4.91	2.47	**1.40**
12.50	5.33	2.81	**1.83**
12.75	5.54	2.99	1.06
13.00	5.73	3.15	0.60
13.25	5.88	3.28	0.41
13.50	6.00	3.38	0.32
13.75	6.08	3.45	0.24
14.00	6.15	3.51	0.18
14.25	6.22	3.57	0.15
14.50	6.29	3.63	0.14
14.75	6.36	3.69	0.13
15.00	6.43	3.75	0.13
15.25	6.47	3.79	0.12
15.50	6.51	3.82	0.09
15.75	6.55	3.86	0.08
16.00	6.59	3.89	0.08
16.25	6.62	3.92	0.07
16.50	6.66	3.96	0.07
16.75	6.70	3.99	0.07
17.00	6.73	4.02	0.07
17.25	6.76	4.05	0.07
17.50	6.80	4.08	0.07
17.75	6.83	4.11	0.06
18.00	6.86	4.13	0.06
18.25	6.89	4.16	0.06
18.50	6.92	4.19	0.06
18.75	6.95	4.21	0.06
19.00	6.97	4.23	0.05
19.25	7.00	4.26	0.05
19.50	7.03	4.28	0.05
19.75	7.05	4.30	0.05
20.00	**7.07**	**4.32**	0.05

Summary for Subcatchment 4S: to W biofilter

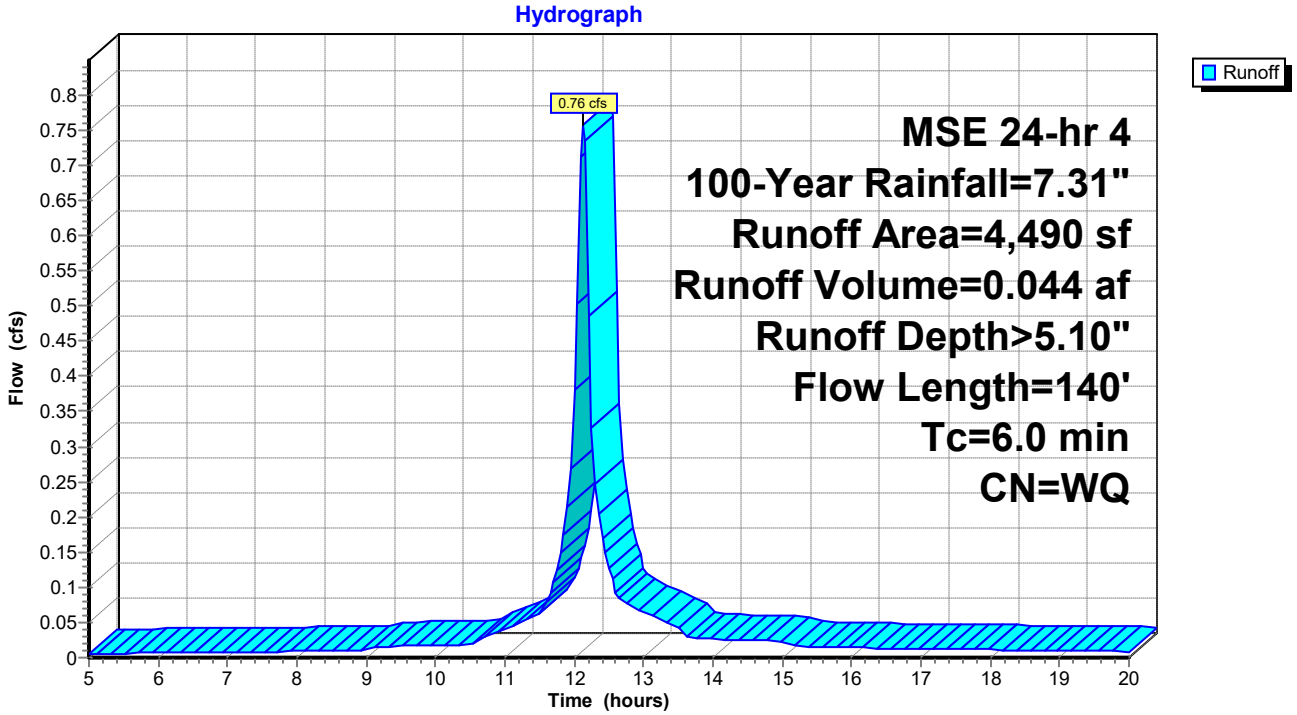
Runoff = 0.76 cfs @ 12.13 hrs, Volume= 0.044 af, Depth> 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	2,000	98	N part driveway
*	230	98	N part parking lot
*	1,600	61	lawn, HSG B, good
*	460	100	bio media
*	200	61	bark mulch landscape
	4,490		Weighted Average
	1,800		40.09% Pervious Area
	2,690		59.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	140		0.39		**Direct Entry, lawn via parking**

Subcatchment 4S: to W biofilter



Hydrograph for Subcatchment 4S: to W biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.01
5.25	0.36	0.00	0.01
5.50	0.39	0.00	0.01
5.75	0.42	0.00	0.01
6.00	0.45	0.00	0.01
6.25	0.48	0.00	0.01
6.50	0.51	0.00	0.01
6.75	0.55	0.01	0.01
7.00	0.58	0.01	0.01
7.25	0.61	0.02	0.01
7.50	0.65	0.03	0.01
7.75	0.69	0.03	0.01
8.00	0.72	0.04	0.01
8.25	0.76	0.05	0.01
8.50	0.80	0.06	0.01
8.75	0.84	0.08	0.01
9.00	0.88	0.09	0.01
9.25	0.95	0.11	0.02
9.50	1.02	0.14	0.02
9.75	1.09	0.17	0.02
10.00	1.16	0.20	0.02
10.25	1.23	0.24	0.02
10.50	1.31	0.27	0.02
10.75	1.43	0.34	0.03
11.00	1.58	0.43	0.04
11.25	1.77	0.54	0.05
11.50	1.98	0.68	0.06
11.75	2.40	0.98	0.12
12.00	3.43	1.80	**0.38**
12.25	4.91	3.10	**0.33**
12.50	5.33	3.47	0.13
12.75	5.54	3.67	0.08
13.00	5.73	3.84	0.06
13.25	5.88	3.98	0.05
13.50	6.00	4.09	0.04
13.75	6.08	4.16	0.03
14.00	6.15	4.23	0.03
14.25	6.22	4.30	0.03
14.50	6.29	4.36	0.03
14.75	6.36	4.43	0.02
15.00	6.43	4.49	0.02
15.25	6.47	4.53	0.02
15.50	6.51	4.56	0.01
15.75	6.55	4.60	0.01
16.00	6.59	4.64	0.01
16.25	6.62	4.67	0.01
16.50	6.66	4.71	0.01
16.75	6.70	4.74	0.01
17.00	6.73	4.77	0.01
17.25	6.76	4.81	0.01
17.50	6.80	4.84	0.01
17.75	6.83	4.87	0.01
18.00	6.86	4.90	0.01
18.25	6.89	4.92	0.01
18.50	6.92	4.95	0.01
18.75	6.95	4.98	0.01
19.00	6.97	5.00	0.01
19.25	7.00	5.03	0.01
19.50	7.03	5.05	0.01
19.75	7.05	5.07	0.01
20.00	**7.07**	**5.10**	0.01

Summary for Subcatchment 5S: to NDS 13-14-15

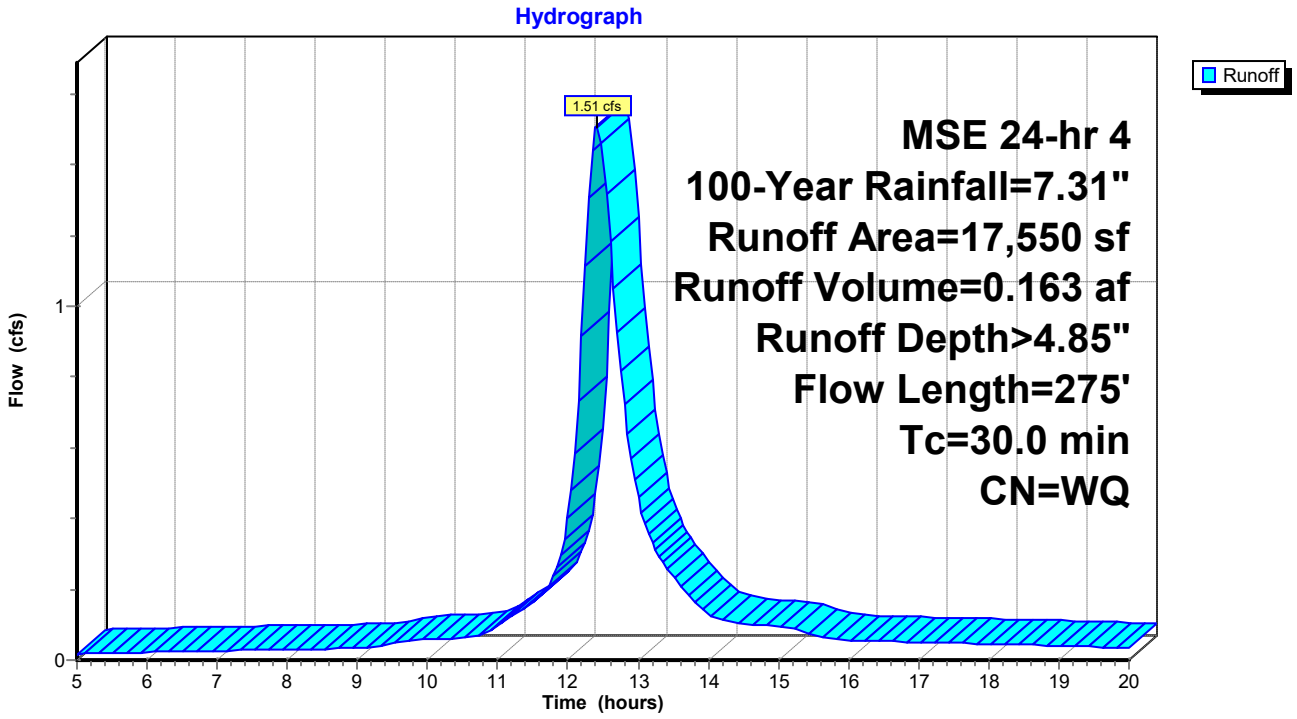
Runoff = 1.51 cfs @ 12.42 hrs, Volume= 0.163 af, Depth> 4.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	550	61	NDS 14-15 lawn berm, HSG B, good
*	500	61	NDS 13 lawn
*	9,500	98	roof+drive run on 1825
*	7,000	61	lawn run on 1825
	17,550		Weighted Average
	8,050		45.87% Pervious Area
	9,500		54.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.0	275		0.15		**Direct Entry, lawn run on 1825**

Subcatchment 5S: to NDS 13-14-15



Hydrograph for Subcatchment 5S: to NDS 13-14-15

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.02
5.25	0.36	0.00	0.02
5.50	0.39	0.00	0.02
5.75	0.42	0.00	0.02
6.00	0.45	0.00	0.02
6.25	0.48	0.00	0.02
6.50	0.51	0.00	0.02
6.75	0.55	0.00	0.02
7.00	0.58	0.00	0.03
7.25	0.61	0.01	0.03
7.50	0.65	0.01	0.03
7.75	0.69	0.02	0.03
8.00	0.72	0.02	0.03
8.25	0.76	0.03	0.03
8.50	0.80	0.04	0.03
8.75	0.84	0.05	0.03
9.00	0.88	0.06	0.03
9.25	0.95	0.08	0.04
9.50	1.02	0.10	0.05
9.75	1.09	0.13	0.05
10.00	1.16	0.16	0.06
10.25	1.23	0.19	0.06
10.50	1.31	0.22	0.06
10.75	1.43	0.28	0.07
11.00	1.58	0.36	0.10
11.25	1.77	0.46	0.13
11.50	1.98	0.59	0.16
11.75	2.40	0.87	0.22
12.00	3.43	1.65	0.40
12.25	4.91	2.91	**1.12**
12.50	5.33	3.27	**1.43**
12.75	5.54	3.47	0.82
13.00	5.73	3.64	0.46
13.25	5.88	3.78	0.31
13.50	6.00	3.89	0.24
13.75	6.08	3.96	0.18
14.00	6.15	4.02	0.13
14.25	6.22	4.09	0.11
14.50	6.29	4.15	0.10
14.75	6.36	4.21	0.10
15.00	6.43	4.27	0.09
15.25	6.47	4.31	0.09
15.50	6.51	4.35	0.07
15.75	6.55	4.39	0.06
16.00	6.59	4.42	0.06
16.25	6.62	4.46	0.05
16.50	6.66	4.49	0.05
16.75	6.70	4.52	0.05
17.00	6.73	4.56	0.05
17.25	6.76	4.59	0.05
17.50	6.80	4.62	0.05
17.75	6.83	4.65	0.05
18.00	6.86	4.68	0.05
18.25	6.89	4.70	0.04
18.50	6.92	4.73	0.04
18.75	6.95	4.76	0.04
19.00	6.97	4.78	0.04
19.25	7.00	4.81	0.04
19.50	7.03	4.83	0.04
19.75	7.05	4.85	0.04
20.00	**7.07**	**4.87**	0.03

Summary for Subcatchment 6S: untreated

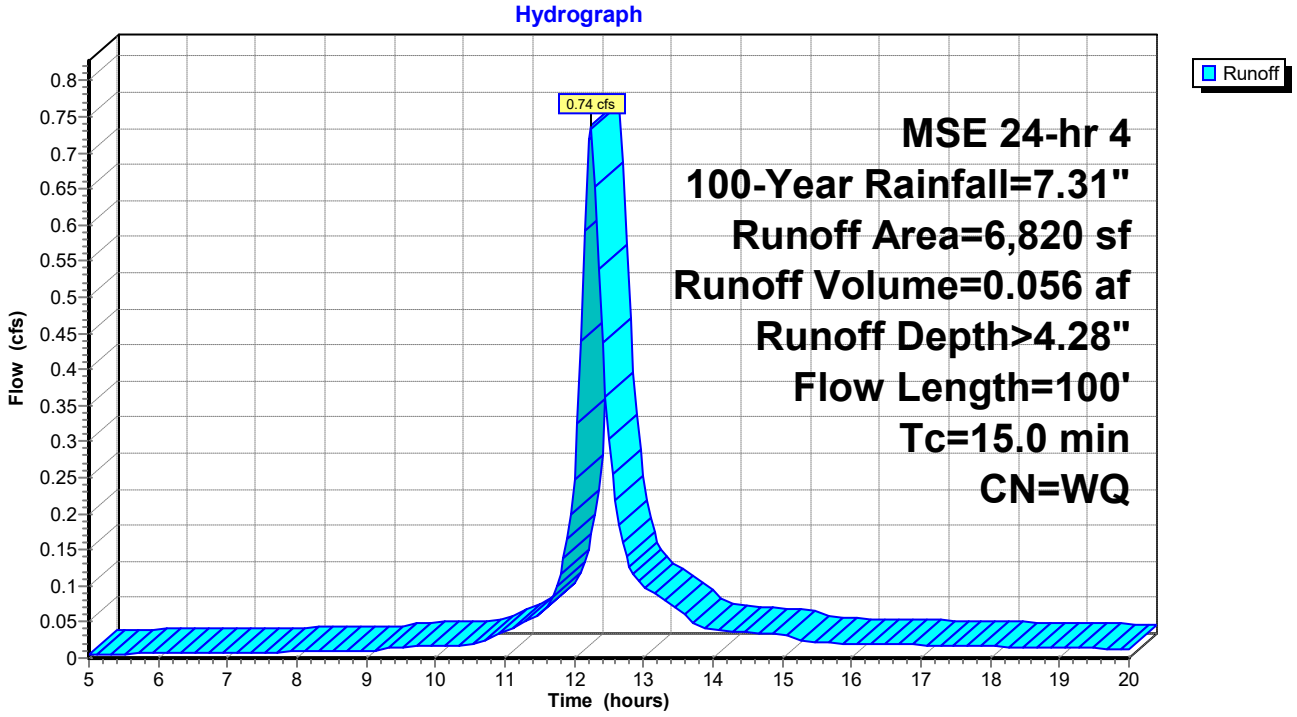
Runoff = 0.74 cfs @ 12.23 hrs, Volume= 0.056 af, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	2,400	98	S driveway
*	3,400	61	lawn, HSG B, good
*	750	61	bark mulch landscape
*	270	98	retain wall
	6,820		Weighted Average
	4,150		60.85% Pervious Area
	2,670		39.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100		0.11		**Direct Entry, landscape to street**

Subcatchment 6S: untreated



Hydrograph for Subcatchment 6S: untreated

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.01
5.25	0.36	0.00	0.01
5.50	0.39	0.00	0.01
5.75	0.42	0.00	0.01
6.00	0.45	0.00	0.01
6.25	0.48	0.00	0.01
6.50	0.51	0.00	0.01
6.75	0.55	0.00	0.01
7.00	0.58	0.00	0.01
7.25	0.61	0.00	0.01
7.50	0.65	0.00	0.01
7.75	0.69	0.00	0.01
8.00	0.72	0.00	0.01
8.25	0.76	0.00	0.01
8.50	0.80	0.01	0.01
8.75	0.84	0.01	0.01
9.00	0.88	0.01	0.01
9.25	0.95	0.02	0.01
9.50	1.02	0.03	0.02
9.75	1.09	0.05	0.02
10.00	1.16	0.06	0.02
10.25	1.23	0.08	0.02
10.50	1.31	0.10	0.02
10.75	1.43	0.14	0.03
11.00	1.58	0.20	0.04
11.25	1.77	0.27	0.05
11.50	1.98	0.37	0.06
11.75	2.40	0.59	0.10
12.00	3.43	1.25	0.25
12.25	4.91	2.38	**0.73**
12.50	5.33	2.72	0.30
12.75	5.54	2.90	0.14
13.00	5.73	3.05	0.10
13.25	5.88	3.18	0.08
13.50	6.00	3.28	0.07
13.75	6.08	3.35	0.05
14.00	6.15	3.41	0.04
14.25	6.22	3.47	0.04
14.50	6.29	3.53	0.04
14.75	6.36	3.59	0.03
15.00	6.43	3.65	0.03
15.25	6.47	3.68	0.03
15.50	6.51	3.72	0.02
15.75	6.55	3.75	0.02
16.00	6.59	3.79	0.02
16.25	6.62	3.82	0.02
16.50	6.66	3.85	0.02
16.75	6.70	3.88	0.02
17.00	6.73	3.91	0.02
17.25	6.76	3.94	0.02
17.50	6.80	3.97	0.02
17.75	6.83	4.00	0.02
18.00	6.86	4.03	0.02
18.25	6.89	4.05	0.02
18.50	6.92	4.08	0.02
18.75	6.95	4.10	0.01
19.00	6.97	4.13	0.01
19.25	7.00	4.15	0.01
19.50	7.03	4.17	0.01
19.75	7.05	4.19	0.01
20.00	**7.07**	**4.21**	0.01

Summary for Subcatchment 7S: NW 1/4 roof

[49] Hint: Tc<2dt may require smaller dt

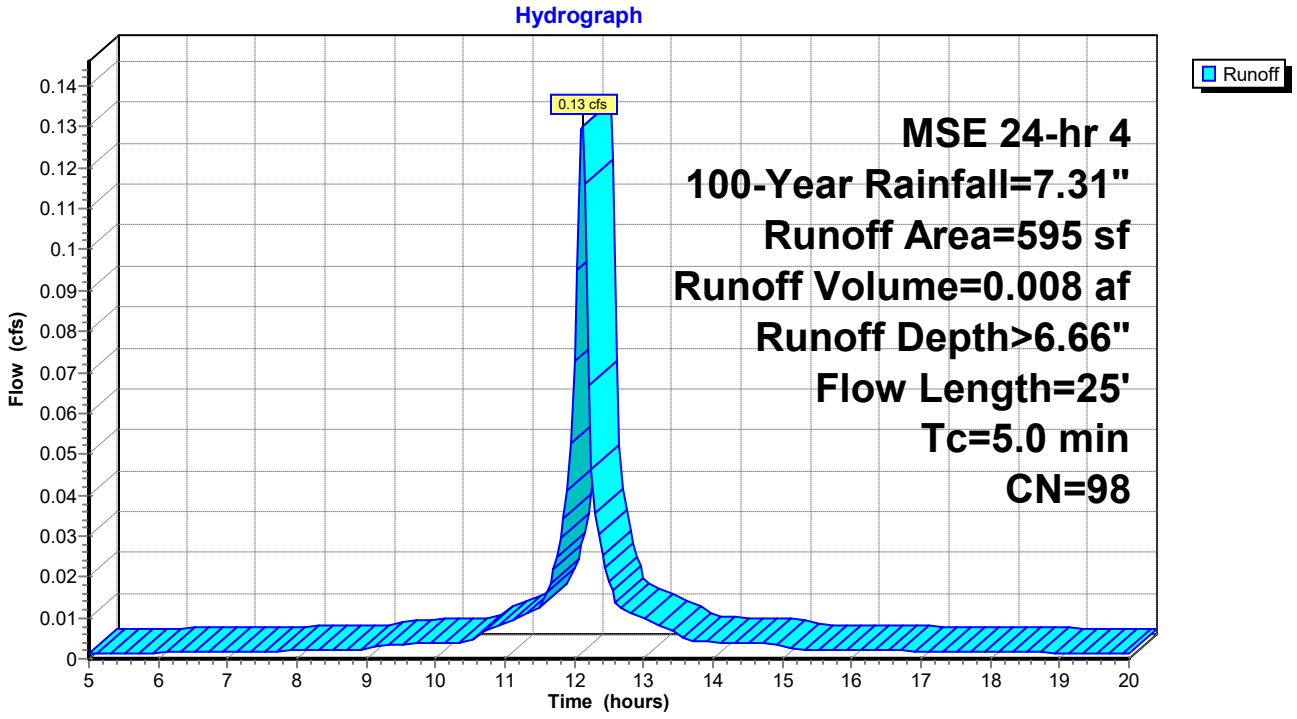
Runoff = 0.13 cfs @ 12.11 hrs, Volume= 0.008 af, Depth> 6.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	595	98	NW 1/4 roof
	595		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, NW 1/4 roof**

Subcatchment 7S: NW 1/4 roof



Hydrograph for Subcatchment 7S: NW 1/4 roof

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.17	0.00
5.25	0.36	0.20	0.00
5.50	0.39	0.22	0.00
5.75	0.42	0.25	0.00
6.00	0.45	0.27	0.00
6.25	0.48	0.30	0.00
6.50	0.51	0.33	0.00
6.75	0.55	0.36	0.00
7.00	0.58	0.39	0.00
7.25	0.61	0.42	0.00
7.50	0.65	0.46	0.00
7.75	0.69	0.49	0.00
8.00	0.72	0.53	0.00
8.25	0.76	0.56	0.00
8.50	0.80	0.60	0.00
8.75	0.84	0.64	0.00
9.00	0.88	0.68	0.00
9.25	0.95	0.74	0.00
9.50	1.02	0.81	0.00
9.75	1.09	0.87	0.00
10.00	1.16	0.94	0.00
10.25	1.23	1.02	0.00
10.50	1.31	1.09	0.00
10.75	1.43	1.21	0.01
11.00	1.58	1.36	0.01
11.25	1.77	1.54	0.01
11.50	1.98	1.76	0.01
11.75	2.40	2.17	0.02
12.00	3.43	3.19	**0.07**
12.25	4.91	4.68	**0.05**
12.50	5.33	5.09	0.02
12.75	5.54	5.31	0.01
13.00	5.73	5.49	0.01
13.25	5.88	5.64	0.01
13.50	6.00	5.76	0.01
13.75	6.08	5.84	0.00
14.00	6.15	5.91	0.00
14.25	6.22	5.99	0.00
14.50	6.29	6.05	0.00
14.75	6.36	6.12	0.00
15.00	6.43	6.19	0.00
15.25	6.47	6.23	0.00
15.50	6.51	6.27	0.00
15.75	6.55	6.31	0.00
16.00	6.59	6.35	0.00
16.25	6.62	6.38	0.00
16.50	6.66	6.42	0.00
16.75	6.70	6.46	0.00
17.00	6.73	6.49	0.00
17.25	6.76	6.53	0.00
17.50	6.80	6.56	0.00
17.75	6.83	6.59	0.00
18.00	6.86	6.62	0.00
18.25	6.89	6.65	0.00
18.50	6.92	6.68	0.00
18.75	6.95	6.71	0.00
19.00	6.97	6.74	0.00
19.25	7.00	6.76	0.00
19.50	7.03	6.79	0.00
19.75	7.05	6.81	0.00
20.00	**7.07**	**6.83**	0.00

Summary for Subcatchment 8S: S 1/2 roof

[49] Hint: Tc<2dt may require smaller dt

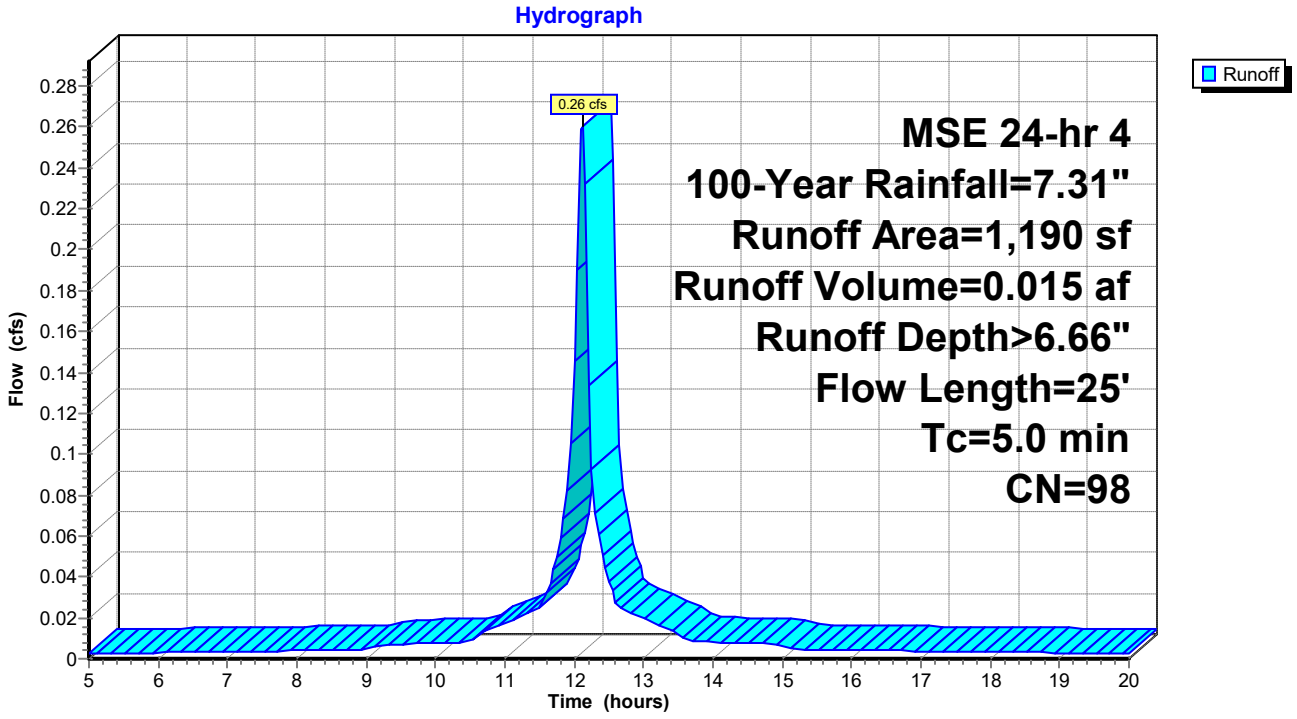
Runoff = 0.26 cfs @ 12.11 hrs, Volume= 0.015 af, Depth> 6.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	1,190	98	S 1/2 roof
	1,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, S 1/2 roof**

Subcatchment 8S: S 1/2 roof



Hydrograph for Subcatchment 8S: S 1/2 roof

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.17	0.00
5.25	0.36	0.20	0.00
5.50	0.39	0.22	0.00
5.75	0.42	0.25	0.00
6.00	0.45	0.27	0.00
6.25	0.48	0.30	0.00
6.50	0.51	0.33	0.00
6.75	0.55	0.36	0.00
7.00	0.58	0.39	0.00
7.25	0.61	0.42	0.00
7.50	0.65	0.46	0.00
7.75	0.69	0.49	0.00
8.00	0.72	0.53	0.00
8.25	0.76	0.56	0.00
8.50	0.80	0.60	0.00
8.75	0.84	0.64	0.00
9.00	0.88	0.68	0.00
9.25	0.95	0.74	0.01
9.50	1.02	0.81	0.01
9.75	1.09	0.87	0.01
10.00	1.16	0.94	0.01
10.25	1.23	1.02	0.01
10.50	1.31	1.09	0.01
10.75	1.43	1.21	0.01
11.00	1.58	1.36	0.02
11.25	1.77	1.54	0.02
11.50	1.98	1.76	0.02
11.75	2.40	2.17	0.05
12.00	3.43	3.19	**0.15**
12.25	4.91	4.68	**0.09**
12.50	5.33	5.09	0.04
12.75	5.54	5.31	0.02
13.00	5.73	5.49	0.02
13.25	5.88	5.64	0.02
13.50	6.00	5.76	0.01
13.75	6.08	5.84	0.01
14.00	6.15	5.91	0.01
14.25	6.22	5.99	0.01
14.50	6.29	6.05	0.01
14.75	6.36	6.12	0.01
15.00	6.43	6.19	0.01
15.25	6.47	6.23	0.00
15.50	6.51	6.27	0.00
15.75	6.55	6.31	0.00
16.00	6.59	6.35	0.00
16.25	6.62	6.38	0.00
16.50	6.66	6.42	0.00
16.75	6.70	6.46	0.00
17.00	6.73	6.49	0.00
17.25	6.76	6.53	0.00
17.50	6.80	6.56	0.00
17.75	6.83	6.59	0.00
18.00	6.86	6.62	0.00
18.25	6.89	6.65	0.00
18.50	6.92	6.68	0.00
18.75	6.95	6.71	0.00
19.00	6.97	6.74	0.00
19.25	7.00	6.76	0.00
19.50	7.03	6.79	0.00
19.75	7.05	6.81	0.00
20.00	**7.07**	**6.83**	0.00

Summary for Reach 3R: S. 8" PVC

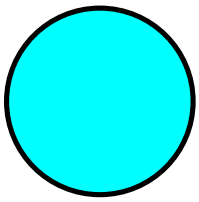
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span
[55] Hint: Peak inflow is 138% of Manning's capacity
[76] Warning: Detained 0.009 af (Pond w/culvert advised)

Inflow Area = 0.430 ac, 57.04% Impervious, Inflow Depth > 4.97" for 100-Year event
Inflow = 1.56 cfs @ 12.41 hrs, Volume= 0.178 af
Outflow = 1.17 cfs @ 12.27 hrs, Volume= 0.178 af, Atten= 25%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.67 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.85 fps, Avg. Travel Time= 0.8 min

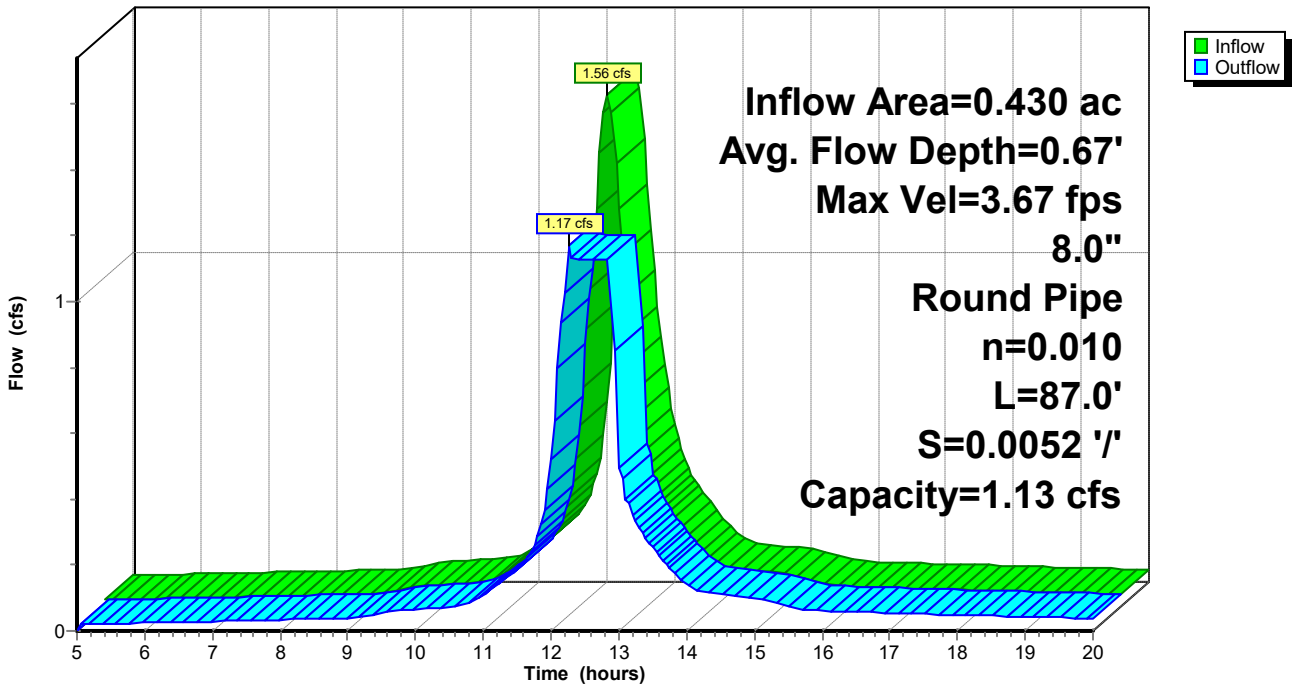
Peak Storage= 30 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.13 cfs

8.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 87.0' Slope= 0.0052 '/'
Inlet Invert= 676.38', Outlet Invert= 675.93'



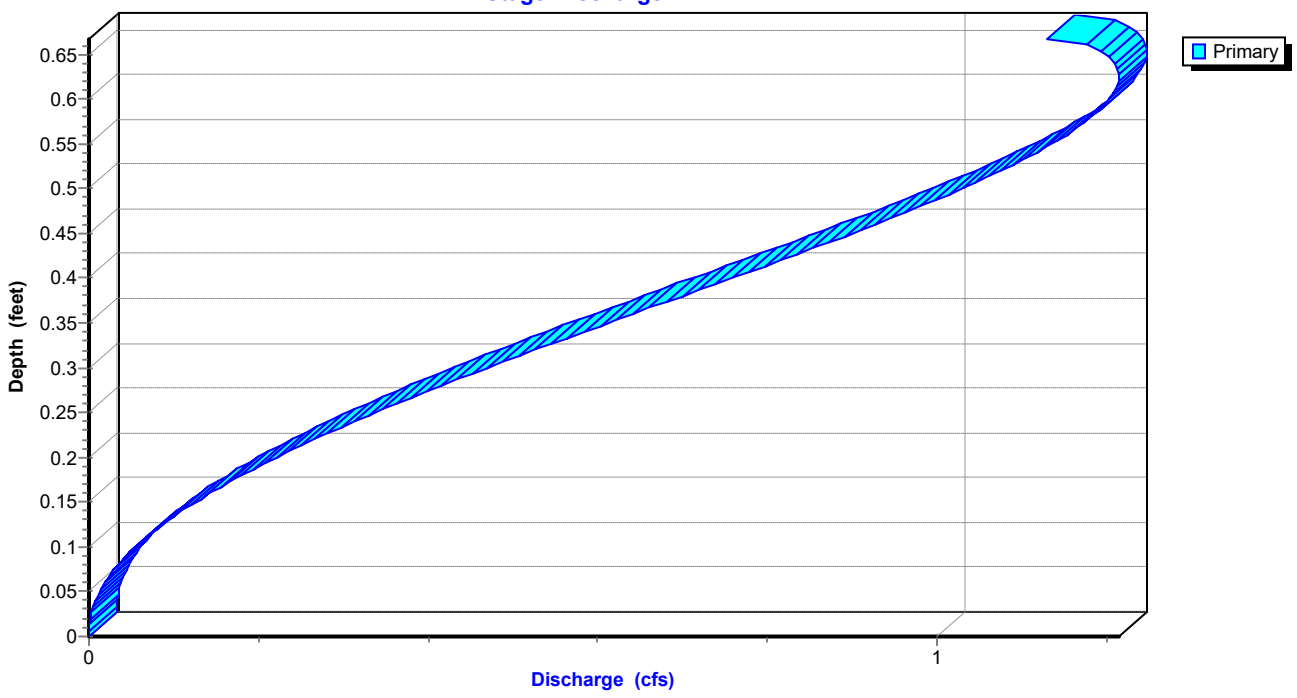
Reach 3R: S. 8" PVC

Hydrograph

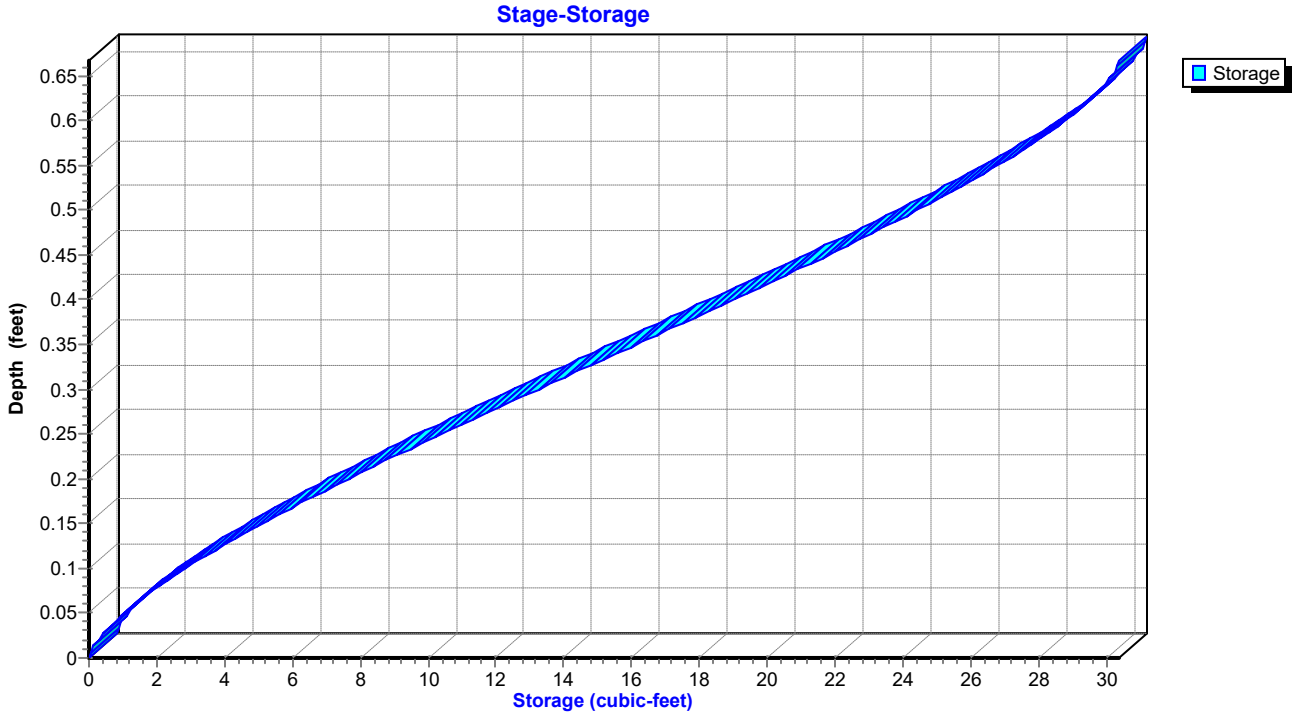


Reach 3R: S. 8" PVC

Stage-Discharge



Reach 3R: S. 8" PVC



Hydrograph for Reach 3R: S. 8" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.02	0	676.38	0.00
5.50	0.02	2	676.44	0.02
6.00	0.02	2	676.45	0.02
6.50	0.03	2	676.45	0.03
7.00	0.03	2	676.45	0.03
7.50	0.03	2	676.46	0.03
8.00	0.03	2	676.46	0.03
8.50	0.04	2	676.46	0.04
9.00	0.04	2	676.46	0.04
9.50	0.06	3	676.48	0.05
10.00	0.07	3	676.49	0.07
10.50	0.07	3	676.49	0.07
11.00	0.11	5	676.52	0.11
11.50	0.19	7	676.56	0.19
12.00	**0.55**	**15**	**676.70**	**0.52**
12.50	**1.46**	**30**	**677.05**	**1.13**
13.00	0.48	13	676.67	0.49
13.50	0.25	8	676.59	0.25
14.00	0.14	6	676.54	0.14
14.50	0.11	5	676.52	0.11
15.00	0.10	4	676.52	0.10
15.50	0.07	4	676.50	0.08
16.00	0.06	3	676.49	0.06
16.50	0.06	3	676.48	0.06
17.00	0.05	3	676.48	0.05
17.50	0.05	3	676.48	0.05
18.00	0.05	3	676.47	0.05
18.50	0.05	3	676.47	0.05
19.00	0.04	2	676.47	0.04
19.50	0.04	2	676.47	0.04
20.00	0.04	2	676.46	0.04

Stage-Discharge for Reach 3R: S. 8" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
676.38	0.00	0.00
676.39	0.37	0.00
676.40	0.60	0.00
676.41	0.78	0.00
676.42	0.94	0.01
676.43	1.08	0.01
676.44	1.21	0.02
676.45	1.34	0.03
676.46	1.46	0.03
676.47	1.57	0.04
676.48	1.67	0.05
676.49	1.77	0.07
676.50	1.87	0.08
676.51	1.96	0.09
676.52	2.05	0.11
676.53	2.13	0.13
676.54	2.22	0.14
676.55	2.29	0.16
676.56	2.37	0.18
676.57	2.44	0.20
676.58	2.51	0.22
676.59	2.58	0.24
676.60	2.65	0.27
676.61	2.71	0.29
676.62	2.77	0.31
676.63	2.83	0.34
676.64	2.88	0.36
676.65	2.94	0.39
676.66	2.99	0.42
676.67	3.04	0.44
676.68	3.09	0.47
676.69	3.14	0.50
676.70	3.18	0.53
676.71	3.22	0.56
676.72	3.26	0.58
676.73	3.30	0.61
676.74	3.34	0.64
676.75	3.38	0.67
676.76	3.41	0.70
676.77	3.44	0.73
676.78	3.47	0.76
676.79	3.50	0.79
676.80	3.53	0.82
676.81	3.55	0.85
676.82	3.57	0.87
676.83	3.59	0.90
676.84	3.61	0.93
676.85	3.63	0.95
676.86	3.64	0.98
676.87	3.66	1.01
676.88	3.67	1.03
676.89	3.68	1.05
676.90	3.68	1.08
676.91	3.69	1.10
676.92	**3.69**	1.12
676.93	3.69	1.14
676.94	3.69	1.15
676.95	3.68	1.17
676.96	3.67	1.18
676.97	3.66	1.19
676.98	3.64	1.20
676.99	3.62	1.21
677.00	3.59	**1.21**
677.01	3.56	1.21
677.02	3.51	1.21
677.03	3.46	1.20
677.04	3.38	1.18
677.05	3.17	1.11

Stage-Area-Storage for Reach 3R: S. 8" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
676.38	0.0	0
676.39	0.0	0
676.40	0.0	0
676.41	0.0	0
676.42	0.0	1
676.43	0.0	1
676.44	0.0	1
676.45	0.0	2
676.46	0.0	2
676.47	0.0	2
676.48	0.0	3
676.49	0.0	3
676.50	0.0	4
676.51	0.0	4
676.52	0.1	5
676.53	0.1	5
676.54	0.1	6
676.55	0.1	6
676.56	0.1	7
676.57	0.1	7
676.58	0.1	8
676.59	0.1	8
676.60	0.1	9
676.61	0.1	9
676.62	0.1	10
676.63	0.1	10
676.64	0.1	11
676.65	0.1	12
676.66	0.1	12
676.67	0.1	13
676.68	0.2	13
676.69	0.2	14
676.70	0.2	14
676.71	0.2	15
676.72	0.2	16
676.73	0.2	16
676.74	0.2	17
676.75	0.2	17
676.76	0.2	18
676.77	0.2	18
676.78	0.2	19
676.79	0.2	20
676.80	0.2	20
676.81	0.2	21
676.82	0.2	21
676.83	0.3	22
676.84	0.3	22
676.85	0.3	23
676.86	0.3	23
676.87	0.3	24
676.88	0.3	24
676.89	0.3	25
676.90	0.3	25
676.91	0.3	26
676.92	0.3	26
676.93	0.3	27
676.94	0.3	27
676.95	0.3	28
676.96	0.3	28
676.97	0.3	28
676.98	0.3	29
676.99	0.3	29
677.00	0.3	29
677.01	0.3	30
677.02	0.3	30
677.03	0.3	30
677.04	0.3	30
677.05	**0.3**	**30**

Summary for Reach 4R: 6" PVC

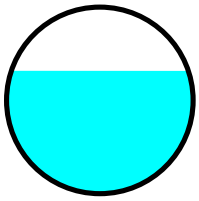
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.160 ac, 49.72% Impervious, Inflow Depth > 3.79" for 100-Year event
Inflow = 2.05 cfs @ 12.56 hrs, Volume= 0.366 af
Outflow = 2.05 cfs @ 12.59 hrs, Volume= 0.366 af, Atten= 0%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.97 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 7.60 fps, Avg. Travel Time= 0.2 min

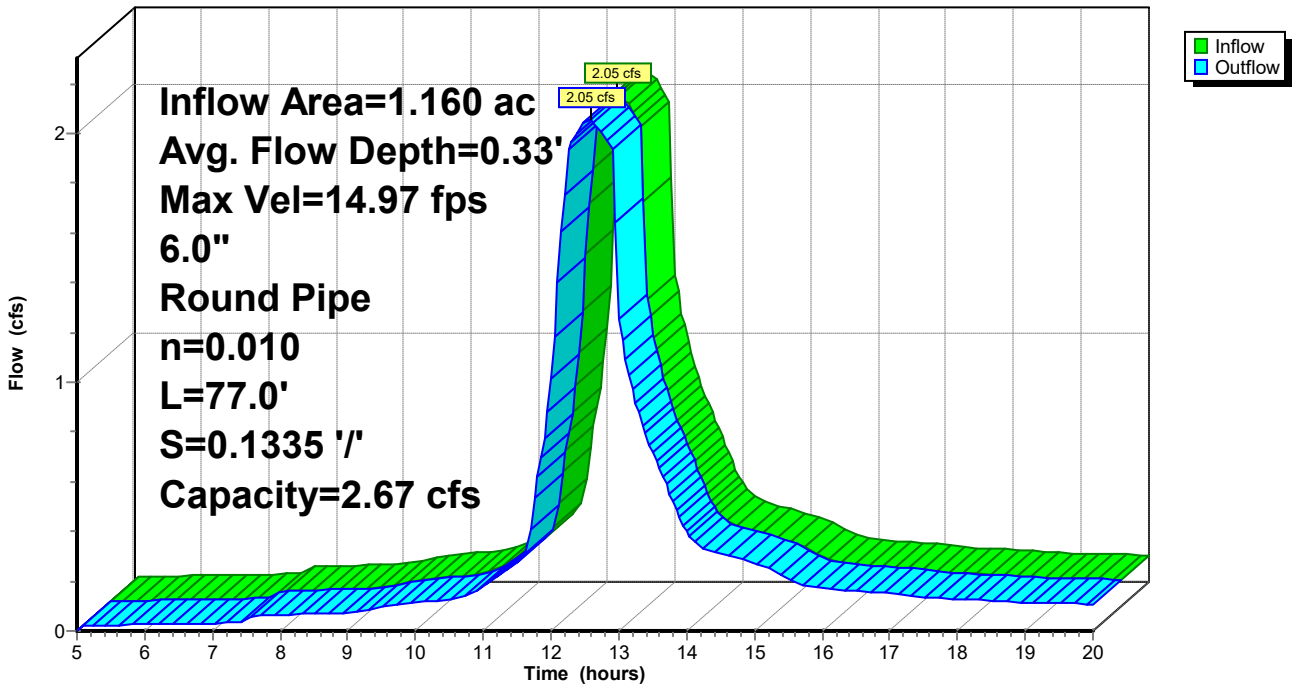
Peak Storage= 11 cf @ 12.59 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 2.67 cfs

6.0" Round Pipe
n= 0.010
Length= 77.0' Slope= 0.1335 '/'
Inlet Invert= 668.80', Outlet Invert= 658.52'



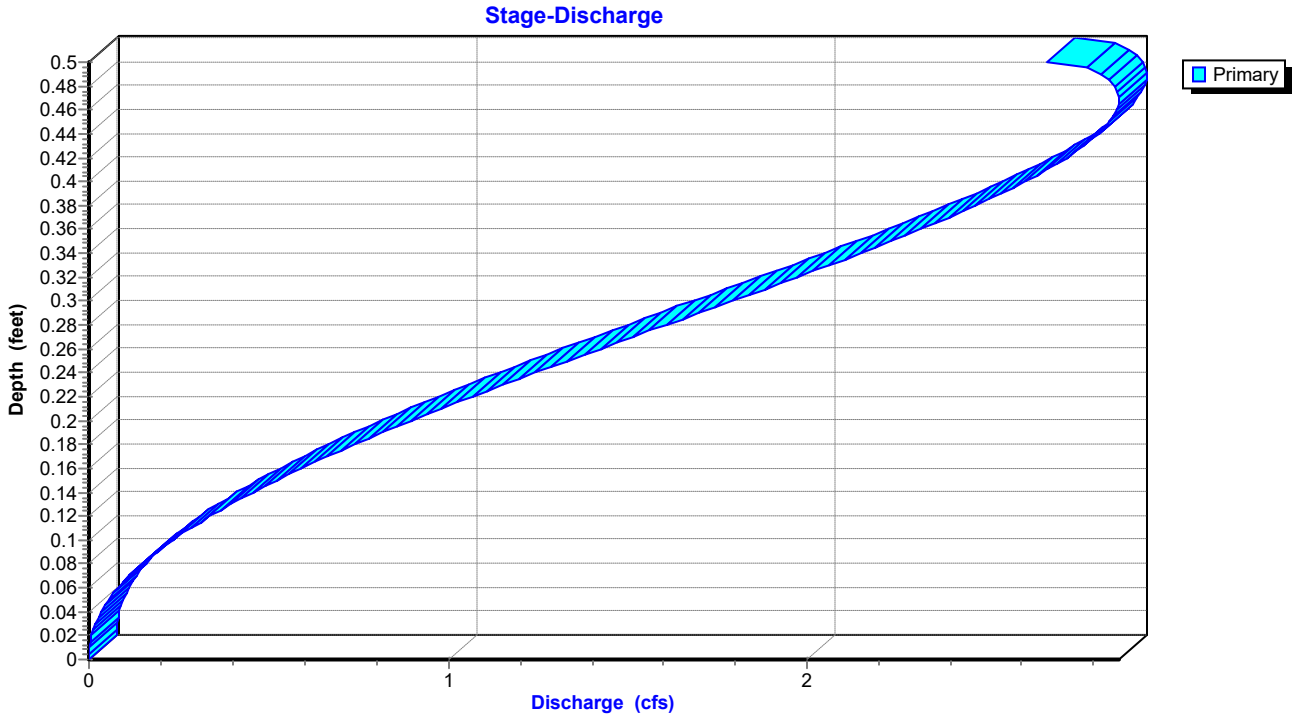
Reach 4R: 6" PVC

Hydrograph

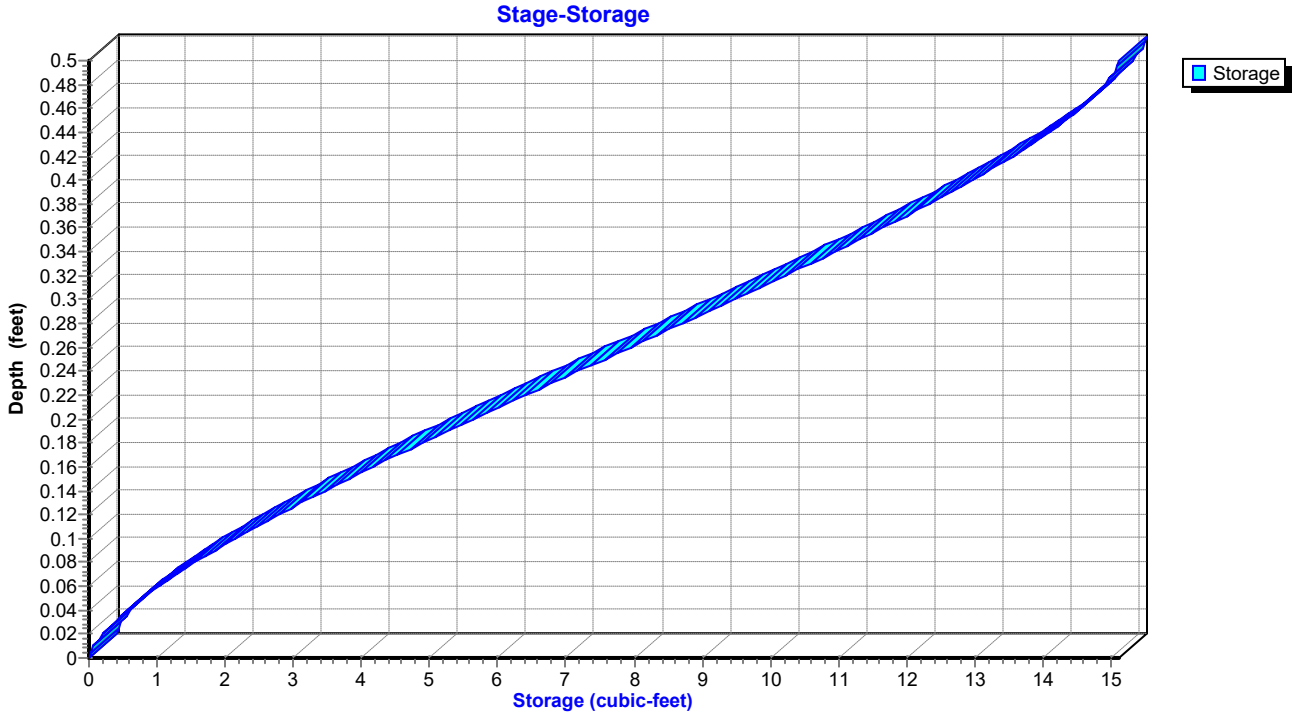


Reach 4R: 6" PVC

Stage-Discharge



Reach 4R: 6" PVC



Hydrograph for Reach 4R: 6" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	668.80	0.00
5.50	0.02	0	668.83	0.02
6.00	0.03	0	668.83	0.03
6.50	0.03	0	668.84	0.03
7.00	0.03	1	668.84	0.03
7.50	0.03	1	668.84	0.03
8.00	0.06	1	668.85	0.06
8.50	0.07	1	668.86	0.07
9.00	0.07	1	668.86	0.07
9.50	0.10	1	668.87	0.10
10.00	0.11	1	668.87	0.11
10.50	0.13	1	668.87	0.13
11.00	0.18	2	668.89	0.18
11.50	0.27	2	668.91	0.27
12.00	1.02	6	669.01	1.01
12.50	**2.05**	**11**	**669.13**	**2.05**
13.00	**1.23**	**7**	**669.04**	**1.25**
13.50	0.71	5	668.98	0.72
14.00	0.40	3	668.93	0.40
14.50	0.31	3	668.91	0.31
15.00	0.27	2	668.91	0.27
15.50	0.21	2	668.90	0.21
16.00	0.17	2	668.89	0.17
16.50	0.16	2	668.88	0.16
17.00	0.15	2	668.88	0.15
17.50	0.14	1	668.88	0.14
18.00	0.13	1	668.87	0.13
18.50	0.12	1	668.87	0.12
19.00	0.11	1	668.87	0.11
19.50	0.11	1	668.87	0.11
20.00	0.11	1	668.87	0.11

Stage-Discharge for Reach 4R: 6" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
668.80	0.00	0.00
668.81	1.91	0.00
668.82	3.01	0.01
668.83	3.93	0.02
668.84	4.72	0.03
668.85	5.45	0.06
668.86	6.11	0.08
668.87	6.72	0.11
668.88	7.30	0.15
668.89	7.84	0.19
668.90	8.35	0.23
668.91	8.83	0.28
668.92	9.29	0.34
668.93	9.73	0.39
668.94	10.14	0.46
668.95	10.54	0.52
668.96	10.91	0.59
668.97	11.27	0.66
668.98	11.61	0.74
668.99	11.94	0.82
669.00	12.25	0.90
669.01	12.54	0.98
669.02	12.82	1.07
669.03	13.09	1.15
669.04	13.34	1.24
669.05	13.57	1.33
669.06	13.80	1.42
669.07	14.01	1.52
669.08	14.20	1.61
669.09	14.39	1.70
669.10	14.56	1.79
669.11	14.71	1.88
669.12	14.86	1.97
669.13	14.98	2.06
669.14	15.10	2.15
669.15	15.20	2.23
669.16	15.29	2.31
669.17	15.36	2.39
669.18	15.41	2.47
669.19	15.45	2.54
669.20	15.47	2.61
669.21	**15.47**	2.67
669.22	15.46	2.72
669.23	15.42	2.77
669.24	15.35	2.81
669.25	15.26	2.84
669.26	15.14	2.86
669.27	14.97	**2.87**
669.28	14.74	2.86
669.29	14.41	2.82
669.30	13.57	2.67

Stage-Area-Storage for Reach 4R: 6" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
668.80	0.0	0
668.81	0.0	0
668.82	0.0	0
668.83	0.0	0
668.84	0.0	1
668.85	0.0	1
668.86	0.0	1
668.87	0.0	1
668.88	0.0	2
668.89	0.0	2
668.90	0.0	2
668.91	0.0	2
668.92	0.0	3
668.93	0.0	3
668.94	0.0	3
668.95	0.0	4
668.96	0.1	4
668.97	0.1	5
668.98	0.1	5
668.99	0.1	5
669.00	0.1	6
669.01	0.1	6
669.02	0.1	6
669.03	0.1	7
669.04	0.1	7
669.05	0.1	8
669.06	0.1	8
669.07	0.1	8
669.08	0.1	9
669.09	0.1	9
669.10	0.1	9
669.11	0.1	10
669.12	0.1	10
669.13	0.1	11
669.14	0.1	11
669.15	0.1	11
669.16	0.2	12
669.17	0.2	12
669.18	0.2	12
669.19	0.2	13
669.20	0.2	13
669.21	0.2	13
669.22	0.2	14
669.23	0.2	14
669.24	0.2	14
669.25	0.2	14
669.26	0.2	15
669.27	0.2	15
669.28	0.2	15
669.29	0.2	15
669.30	**0.2**	**15**

Summary for Pond 3P: E biofilter LINED

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=12)

Inflow Area = 0.043 ac, 57.33% Impervious, Inflow Depth > 5.00" for 100-Year event
Inflow = 0.29 cfs @ 12.15 hrs, Volume= 0.018 af
Outflow = 0.18 cfs @ 12.26 hrs, Volume= 0.017 af, Atten= 40%, Lag= 6.5 min
Discarded = 0.00 cfs @ 12.25 hrs, Volume= 0.000 af
Primary = 0.18 cfs @ 12.26 hrs, Volume= 0.017 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 681.13' @ 12.26 hrs Surf.Area= 1,362 sf Storage= 272 cf

Plug-Flow detention time= 90.9 min calculated for 0.017 af (93% of inflow)
Center-of-Mass det. time= 65.5 min (816.1 - 750.7)

Volume	Invert	Avail.Storage	Storage Description
#1	678.00'	54 cf	**10.50'W x 15.50'L x 1.00'H sand invert** 163 cf Overall x 33.0% Voids
#2	679.00'	66 cf	**10.50'W x 15.50'L x 1.50'H media** 244 cf Overall x 27.0% Voids
#3	680.50'	128 cf	**10.50'W x 15.50'L x 0.60'H top media Z=3.0**
#4	681.10'	192 cf	**39.25'W x 19.25'L x 0.24'H NDS drain Z=3.0**
#5	681.34'	82 cf	**40.00'W x 20.00'L x 0.10'H weir overflow Z=3.0**
		521 cf	Total Available Storage

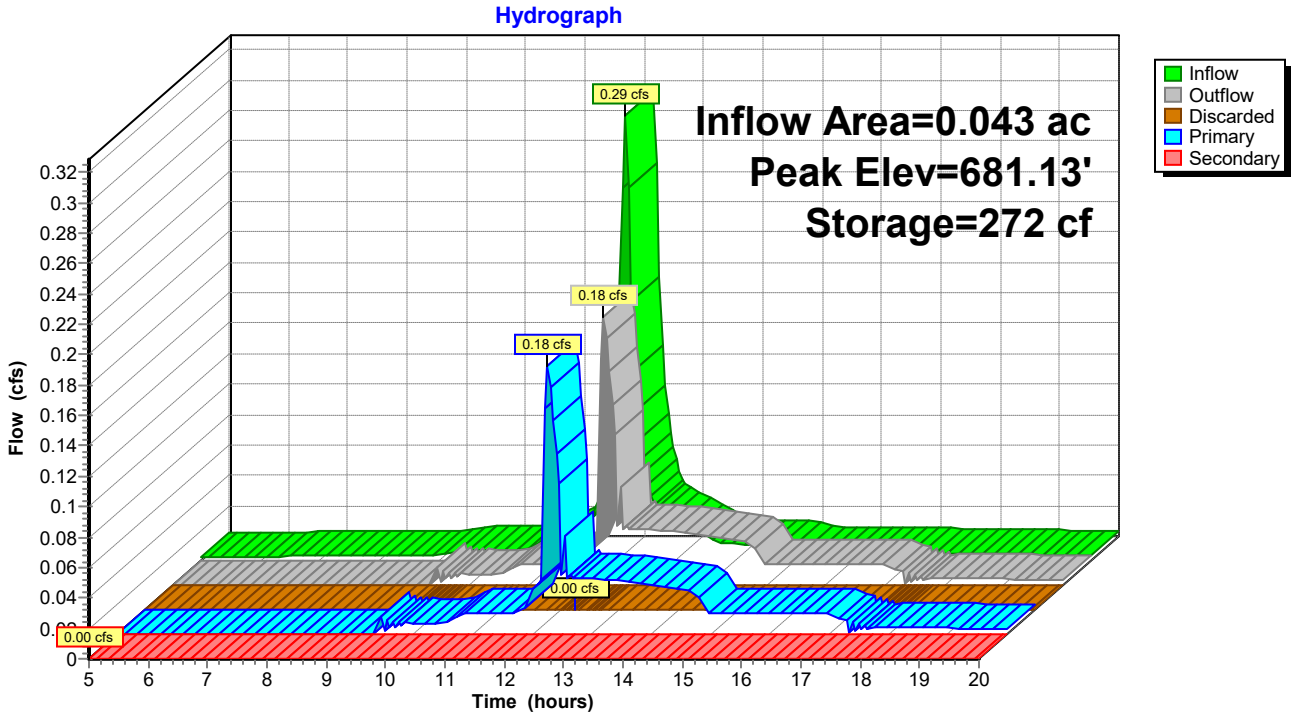
Device	Routing	Invert	Outlet Devices
#1	Secondary	681.34'	**6.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Primary	681.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	678.00'	**3.600 in/hr underdrain over Horizontal area above 678.00'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 163 sf Phase-In= 0.50'
#4	Discarded	678.00'	**0.001 in/hr Exfiltration over Horizontal area above 678.00'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 163 sf Phase-In= 0.50'

Discarded OutFlow Max=0.00 cfs @ 12.25 hrs HW=681.13' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

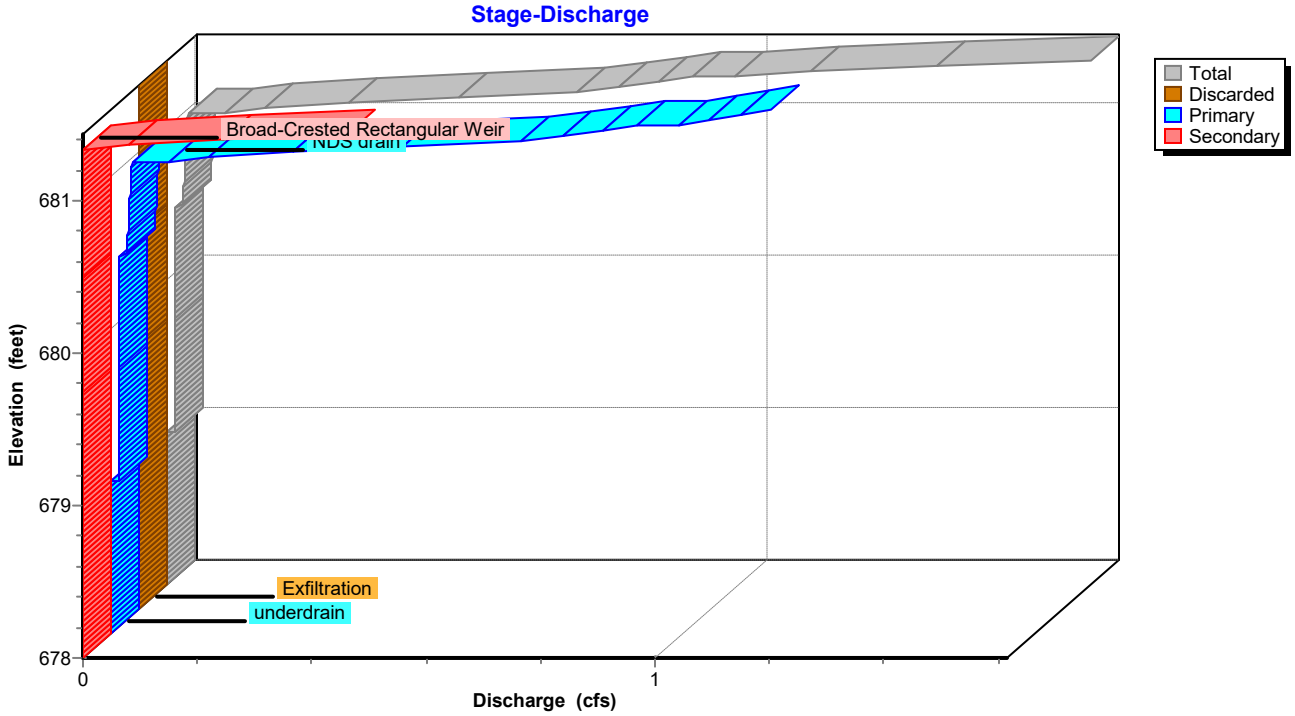
Primary OutFlow Max=0.17 cfs @ 12.26 hrs HW=681.13' (Free Discharge)
├**2=NDS drain** (Weir Controls 0.07 cfs @ 0.57 fps)
└**3=underdrain** (Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=678.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

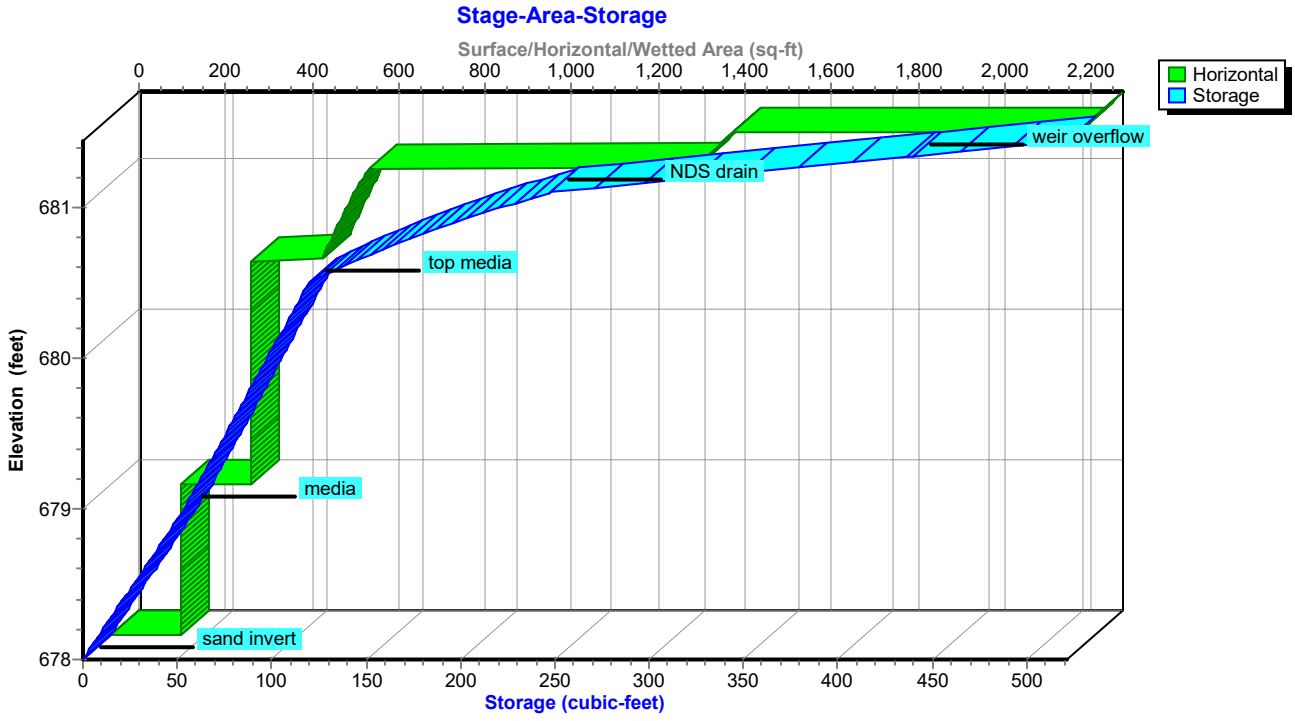
Pond 3P: E biofilter LINED



Pond 3P: E biofilter LINED



Pond 3P: E biofilter LINED



Hydrograph for Pond 3P: E biofilter LINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.00	0	678.00	0.00	0.00	0.00	**0.00**
5.50	0.00	4	678.08	0.00	0.00	0.00	0.00
6.00	0.00	9	678.17	0.00	0.00	0.00	0.00
6.50	0.00	14	678.26	0.00	0.00	0.00	0.00
7.00	0.00	20	678.37	0.00	0.00	0.00	0.00
7.50	0.00	25	678.47	0.00	0.00	0.00	0.00
8.00	0.00	32	678.59	0.00	0.00	0.00	0.00
8.50	0.00	38	678.72	0.00	0.00	0.00	0.00
9.00	0.00	45	678.85	0.00	0.00	0.00	0.00
9.50	0.01	54	679.00	0.00	0.00	0.00	0.00
10.00	0.01	54	679.00	0.01	0.00	0.01	0.00
10.50	0.01	54	679.00	0.01	0.00	0.01	0.00
11.00	0.02	54	679.01	0.01	0.00	0.01	0.00
11.50	0.02	66	679.27	0.01	0.00	0.01	0.00
12.00	**0.13**	**136**	**680.59**	**0.03**	**0.00**	**0.03**	0.00
12.50	**0.06**	**247**	**681.10**	**0.04**	**0.00**	**0.04**	0.00
13.00	0.03	239	681.07	0.04	0.00	0.04	0.00
13.50	0.02	215	680.97	0.04	0.00	0.04	0.00
14.00	0.01	177	680.81	0.03	0.00	0.03	0.00
14.50	0.01	141	680.62	0.03	0.00	0.03	0.00
15.00	0.01	116	680.42	0.01	0.00	0.01	0.00
15.50	0.01	104	680.13	0.01	0.00	0.01	0.00
16.00	0.01	89	679.81	0.01	0.00	0.01	0.00
16.50	0.01	75	679.47	0.01	0.00	0.01	0.00
17.00	0.01	60	679.13	0.01	0.00	0.01	0.00
17.50	0.01	54	679.00	0.01	0.00	0.01	0.00
18.00	0.00	54	679.00	0.00	0.00	0.00	0.00
18.50	0.00	54	679.00	0.00	0.00	0.00	0.00
19.00	0.00	54	679.00	0.00	0.00	0.00	0.00
19.50	0.00	54	679.00	0.00	0.00	0.00	0.00
20.00	0.00	54	679.00	0.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: E biofilter LINED

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
678.00	0.00	0.00	0.00	0.00
678.10	0.00	0.00	0.00	0.00
678.20	0.00	0.00	0.00	0.00
678.30	0.00	0.00	0.00	0.00
678.40	0.00	0.00	0.00	0.00
678.50	0.00	0.00	0.00	0.00
678.60	0.00	0.00	0.00	0.00
678.70	0.00	0.00	0.00	0.00
678.80	0.00	0.00	0.00	0.00
678.90	0.00	0.00	0.00	0.00
679.00	0.01	0.00	0.01	0.00
679.10	0.01	0.00	0.01	0.00
679.20	0.01	0.00	0.01	0.00
679.30	0.01	0.00	0.01	0.00
679.40	0.01	0.00	0.01	0.00
679.50	0.01	0.00	0.01	0.00
679.60	0.01	0.00	0.01	0.00
679.70	0.01	0.00	0.01	0.00
679.80	0.01	0.00	0.01	0.00
679.90	0.01	0.00	0.01	0.00
680.00	0.01	0.00	0.01	0.00
680.10	0.01	0.00	0.01	0.00
680.20	0.01	0.00	0.01	0.00
680.30	0.01	0.00	0.01	0.00
680.40	0.01	0.00	0.01	0.00
680.50	0.03	0.00	0.03	0.00
680.60	0.03	0.00	0.03	0.00
680.70	0.03	0.00	0.03	0.00
680.80	0.03	0.00	0.03	0.00
680.90	0.03	0.00	0.03	0.00
681.00	0.04	0.00	0.04	0.00
681.10	0.10	0.00	0.10	0.00
681.20	0.52	0.00	0.52	0.00
681.30	0.85	0.00	0.85	0.00
681.40	**1.31**	**0.00**	**1.09**	**0.22**

Stage-Area-Storage for Pond 3P: E biofilter LINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
678.00	163	0
678.05	163	3
678.10	163	5
678.15	163	8
678.20	163	11
678.25	163	13
678.30	163	16
678.35	163	19
678.40	163	21
678.45	163	24
678.50	163	27
678.55	163	30
678.60	163	32
678.65	163	35
678.70	163	38
678.75	163	40
678.80	163	43
678.85	163	46
678.90	163	48
678.95	163	51
679.00	326	54
679.05	326	56
679.10	326	58
679.15	326	60
679.20	326	62
679.25	326	65
679.30	326	67
679.35	326	69
679.40	326	71
679.45	326	73
679.50	326	76
679.55	326	78
679.60	326	80
679.65	326	82
679.70	326	84
679.75	326	87
679.80	326	89
679.85	326	91
679.90	326	93
679.95	326	95
680.00	326	98
680.05	326	100
680.10	326	102
680.15	326	104
680.20	326	106
680.25	326	109
680.30	326	111
680.35	326	113
680.40	326	115
680.45	326	117
680.50	488	120
680.55	496	128
680.60	504	137
680.65	512	146
680.70	521	155
680.75	530	165
680.80	538	176
680.85	547	187
680.90	556	198
680.95	566	210
681.00	575	222
681.05	585	235
681.10	1,350	248
681.15	1,368	286
681.20	1,386	325
681.25	1,404	365
681.30	1,422	406
681.35	2,240	448
681.40	**2,258**	**488**

Summary for Pond 5P: W biofillter UNLINED

[82] Warning: Early inflow requires earlier time span
[93] Warning: Storage range exceeded by 0.12'
[88] Warning: Qout>Qin may require smaller dt or Finer Routing
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.673 ac, 43.54% Impervious, Inflow Depth > 4.44" for 100-Year event
Inflow = 2.09 cfs @ 12.41 hrs, Volume= 0.249 af
Outflow = 2.09 cfs @ 12.43 hrs, Volume= 0.227 af, Atten= 0%, Lag= 1.3 min
Discarded = 0.00 cfs @ 12.43 hrs, Volume= 0.001 af
Primary = 0.90 cfs @ 12.43 hrs, Volume= 0.164 af
Secondary = 1.19 cfs @ 12.43 hrs, Volume= 0.062 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 676.28' @ 12.43 hrs Surf.Area= 2,824 sf Storage= 1,047 cf

Plug-Flow detention time= 53.4 min calculated for 0.227 af (91% of inflow)
Center-of-Mass det. time= 23.2 min (795.3 - 772.0)

Volume	Invert	Avail.Storage	Storage Description
#1	671.75'	107 cf	**8.30'W x 39.20'L x 1.00'H sand invert** 325 cf Overall x 33.0% Voids
#2	672.75'	176 cf	**8.30'W x 39.20'L x 2.00'H media** 651 cf Overall x 27.0% Voids
#3	674.75'	728 cf	**8.30'W x 39.20'L x 1.35'H top media Z=3.0**
#4	676.10'	27 cf	**12.30'W x 43.20'L x 0.05'H NDS drain Z=3.0**
#5	676.15'	8 cf	**18.00'W x 47.00'L x 0.01'H weir overflow Z=3.0**
		1,047 cf	Total Available Storage

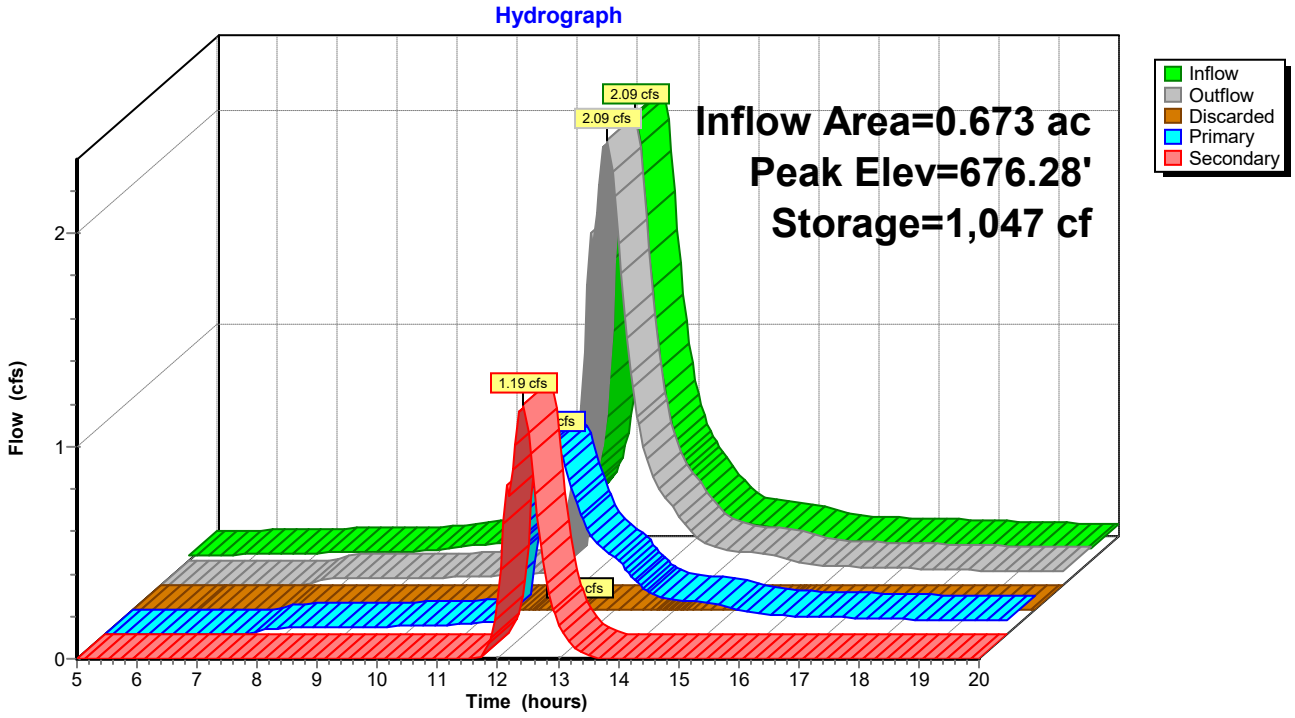
Device	Routing	Invert	Outlet Devices
#1	Secondary	676.15'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Primary	676.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	672.75'	**3.600 in/hr underdrain over Horizontal area above 672.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 651 sf Phase-In= 0.50'
#4	Discarded	671.75'	**0.030 in/hr Exfiltration over Horizontal area above 671.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 325 sf Phase-In= 0.50'

Discarded OutFlow Max=0.00 cfs @ 12.43 hrs HW=676.28' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

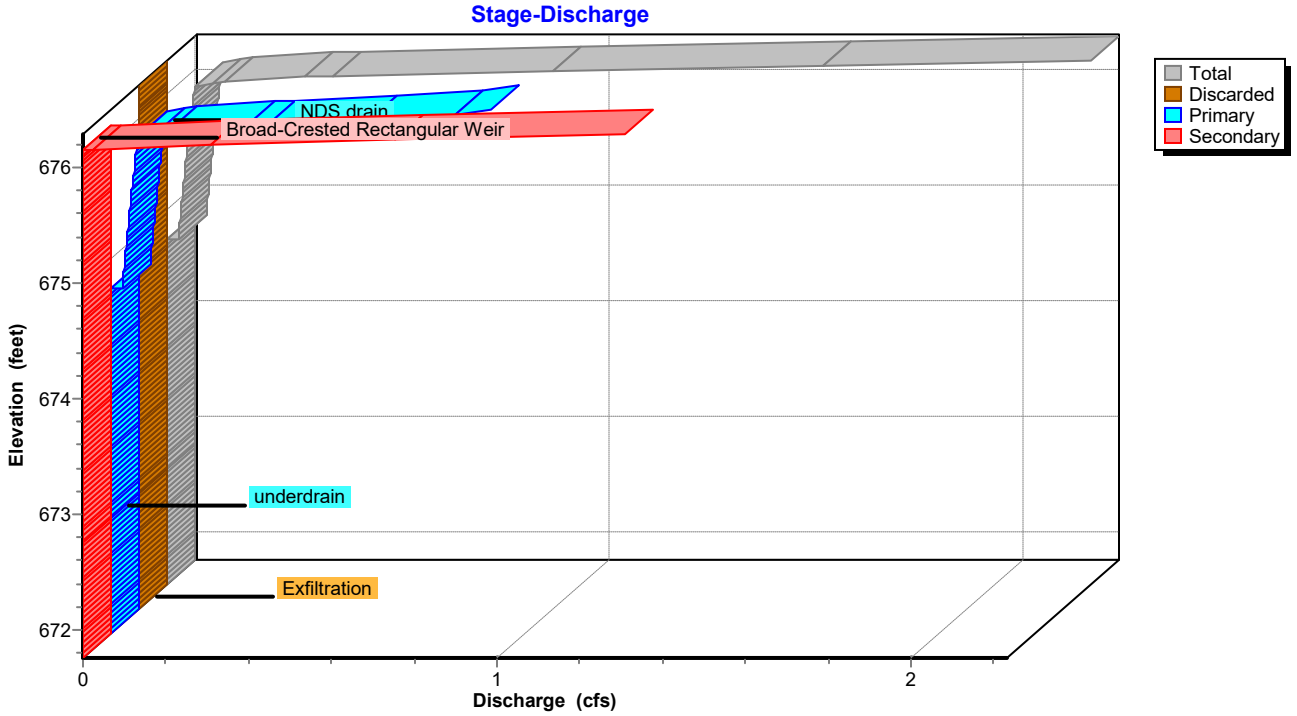
Primary OutFlow Max=0.90 cfs @ 12.43 hrs HW=676.28' (Free Discharge)
├**2=NDS drain** (Orifice Controls 0.71 cfs @ 2.05 fps)
└**3=underdrain** (Controls 0.18 cfs)

Secondary OutFlow Max=1.17 cfs @ 12.43 hrs HW=676.28' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 1.17 cfs @ 0.89 fps)

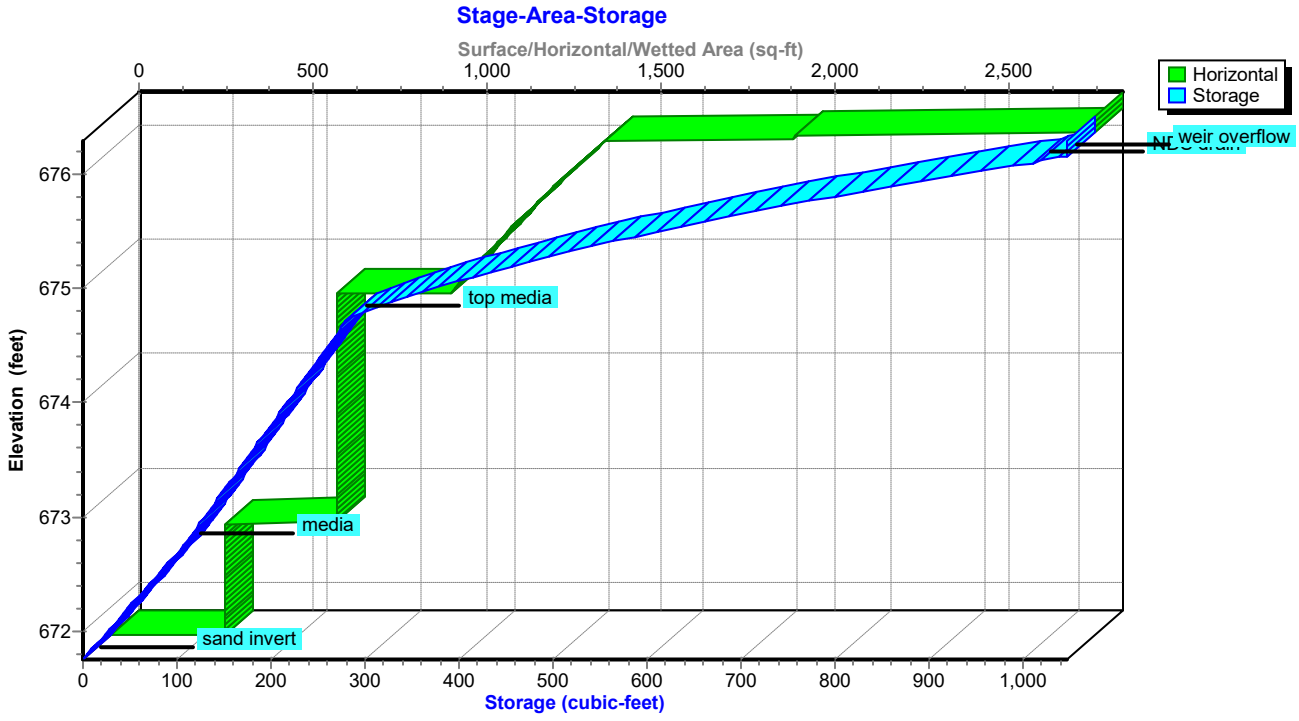
Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Hydrograph for Pond 5P: W biofillter UNLINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.02	2	671.77	0.00	0.00	0.00	0.00
5.50	0.03	48	672.20	0.00	0.00	0.00	0.00
6.00	0.03	99	672.67	0.00	0.00	0.00	0.00
6.50	0.03	155	673.29	0.00	0.00	0.00	0.00
7.00	0.04	216	673.99	0.00	0.00	0.00	0.00
7.50	0.04	282	674.74	0.00	0.00	0.00	0.00
8.00	0.04	305	674.81	0.03	0.00	0.03	0.00
8.50	0.04	327	674.88	0.03	0.00	0.03	0.00
9.00	0.05	350	674.94	0.03	0.00	0.03	0.00
9.50	0.07	391	675.04	0.04	0.00	0.03	0.00
10.00	0.08	458	675.20	0.04	0.00	0.04	0.00
10.50	0.09	531	675.35	0.04	0.00	0.04	0.00
11.00	0.14	642	675.55	0.05	0.00	0.05	0.00
11.50	0.25	889	675.94	0.06	0.00	0.06	0.00
12.00	**0.86**	**1,047**	**676.20**	**0.84**	**0.00**	**0.58**	**0.26**
12.50	**1.96**	**1,047**	**676.27**	**1.94**	**0.00**	**0.88**	**1.06**
13.00	0.67	1,047	676.18	0.65	0.00	0.49	0.16
13.50	0.36	1,043	676.16	0.37	0.00	0.36	0.01
14.00	0.20	1,027	676.13	0.21	0.00	0.21	0.00
14.50	0.16	1,022	676.12	0.16	0.00	0.16	0.00
15.00	0.15	1,021	676.12	0.15	0.00	0.15	0.00
15.50	0.11	1,013	676.10	0.12	0.00	0.12	0.00
16.00	0.09	1,003	676.09	0.09	0.00	0.09	0.00
16.50	0.09	999	676.08	0.09	0.00	0.09	0.00
17.00	0.08	997	676.08	0.08	0.00	0.08	0.00
17.50	0.08	995	676.08	0.08	0.00	0.08	0.00
18.00	0.07	993	676.08	0.07	0.00	0.07	0.00
18.50	0.07	991	676.07	0.07	0.00	0.07	0.00
19.00	0.06	989	676.07	0.07	0.00	0.07	0.00
19.50	0.06	980	676.06	0.07	0.00	0.07	0.00
20.00	0.06	965	676.04	0.07	0.00	0.06	0.00

Stage-Discharge for Pond 5P: W biofillter UNLINED

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
671.75	0.00	0.00	0.00	0.00
671.85	0.00	0.00	0.00	0.00
671.95	0.00	0.00	0.00	0.00
672.05	0.00	0.00	0.00	0.00
672.15	0.00	0.00	0.00	0.00
672.25	0.00	0.00	0.00	0.00
672.35	0.00	0.00	0.00	0.00
672.45	0.00	0.00	0.00	0.00
672.55	0.00	0.00	0.00	0.00
672.65	0.00	0.00	0.00	0.00
672.75	0.00	0.00	0.00	0.00
672.85	0.00	0.00	0.00	0.00
672.95	0.00	0.00	0.00	0.00
673.05	0.00	0.00	0.00	0.00
673.15	0.00	0.00	0.00	0.00
673.25	0.00	0.00	0.00	0.00
673.35	0.00	0.00	0.00	0.00
673.45	0.00	0.00	0.00	0.00
673.55	0.00	0.00	0.00	0.00
673.65	0.00	0.00	0.00	0.00
673.75	0.00	0.00	0.00	0.00
673.85	0.00	0.00	0.00	0.00
673.95	0.00	0.00	0.00	0.00
674.05	0.00	0.00	0.00	0.00
674.15	0.00	0.00	0.00	0.00
674.25	0.00	0.00	0.00	0.00
674.35	0.00	0.00	0.00	0.00
674.45	0.00	0.00	0.00	0.00
674.55	0.00	0.00	0.00	0.00
674.65	0.00	0.00	0.00	0.00
674.75	0.03	0.00	0.03	0.00
674.85	0.03	0.00	0.03	0.00
674.95	0.03	0.00	0.03	0.00
675.05	0.04	0.00	0.03	0.00
675.15	0.04	0.00	0.04	0.00
675.25	0.04	0.00	0.04	0.00
675.35	0.04	0.00	0.04	0.00
675.45	0.05	0.00	0.05	0.00
675.55	0.05	0.00	0.05	0.00
675.65	0.05	0.00	0.05	0.00
675.75	0.06	0.00	0.06	0.00
675.85	0.06	0.00	0.06	0.00
675.95	0.06	0.00	0.06	0.00
676.05	0.07	0.00	0.07	0.00
676.15	0.33	0.00	0.33	0.00
676.25	**1.61**	**0.00**	**0.83**	**0.77**

Stage-Area-Storage for Pond 5P: W biofillter UNLINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
671.75	325	0
671.80	325	5
671.85	325	11
671.90	325	16
671.95	325	21
672.00	325	27
672.05	325	32
672.10	325	38
672.15	325	43
672.20	325	48
672.25	325	54
672.30	325	59
672.35	325	64
672.40	325	70
672.45	325	75
672.50	325	81
672.55	325	86
672.60	325	91
672.65	325	97
672.70	325	102
672.75	651	107
672.80	651	112
672.85	651	116
672.90	651	121
672.95	651	125
673.00	651	129
673.05	651	134
673.10	651	138
673.15	651	143
673.20	651	147
673.25	651	151
673.30	651	156
673.35	651	160
673.40	651	164
673.45	651	169
673.50	651	173
673.55	651	178
673.60	651	182
673.65	651	186
673.70	651	191
673.75	651	195
673.80	651	200
673.85	651	204
673.90	651	208
673.95	651	213
674.00	651	217
674.05	651	222
674.10	651	226
674.15	651	230
674.20	651	235
674.25	651	239
674.30	651	244
674.35	651	248
674.40	651	252
674.45	651	257
674.50	651	261
674.55	651	265
674.60	651	270
674.65	651	274
674.70	651	279
674.75	976	283
674.80	990	300
674.85	1,005	317
674.90	1,020	335
674.95	1,035	354
675.00	1,050	373
675.05	1,065	394
675.10	1,080	415
675.15	1,096	437
675.20	1,112	459
675.25	1,128	483
675.30	1,144	507
675.35	1,160	532
675.40	1,177	558
675.45	1,193	585
675.50	1,210	612
675.55	1,227	641
675.60	1,244	670
675.65	1,262	700
675.70	1,279	731
675.75	1,297	763
675.80	1,315	796
675.85	1,333	829
675.90	1,351	864
675.95	1,370	899
676.00	1,389	936
676.05	1,407	973
676.10	1,958	1,012
676.15	**2,821**	**1,039**
676.20	**2,824**	**1,047**
676.25	2,824	1,047

Summary for Pond 7P: 48" UG storage

[82] Warning: Early inflow requires earlier time span
[78] Warning: Submerged Pond 5P Primary device # 3 by 0.44'

Inflow Area = 0.730 ac, 45.41% Impervious, Inflow Depth > 3.09" for 100-Year event
Inflow = 1.07 cfs @ 12.27 hrs, Volume= 0.188 af
Outflow = 0.92 cfs @ 12.56 hrs, Volume= 0.188 af, Atten= 14%, Lag= 17.7 min
Primary = 0.92 cfs @ 12.56 hrs, Volume= 0.188 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 673.19' @ 12.56 hrs Surf.Area= 151 sf Storage= 555 cf

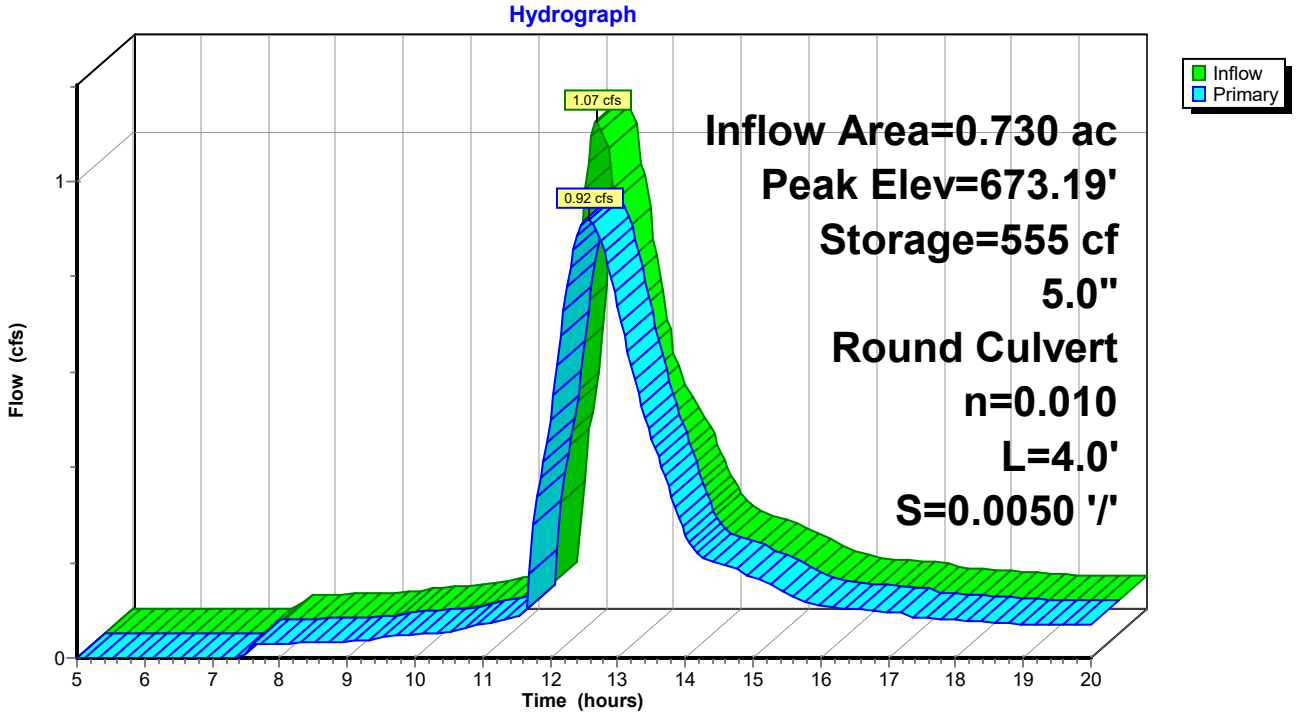
Plug-Flow detention time= 5.1 min calculated for 0.188 af (100% of inflow)
Center-of-Mass det. time= 4.7 min (815.0 - 810.3)

Volume	Invert	Avail.Storage	Storage Description
#1	669.82'	628 cf	**48.0" Round Pipe Storage** L= 50.0' S= 0.0026 '/'

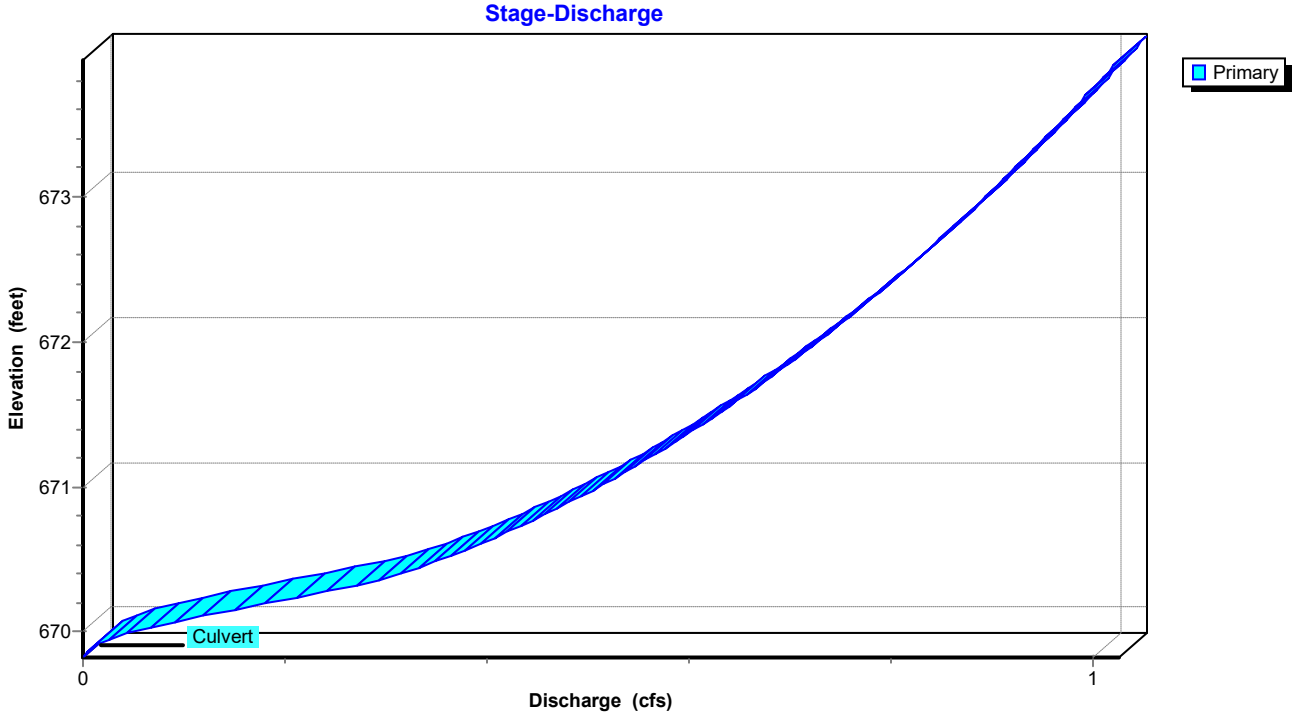
Device	Routing	Invert	Outlet Devices
#1	Primary	669.82'	**5.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 669.82' / 669.80' S= 0.0050 '/' Cc= 0.900 n= 0.010, Flow Area= 0.14 sf

Primary OutFlow Max=0.92 cfs @ 12.56 hrs HW=673.19' (Free Discharge)
1=Culvert (Inlet Controls 0.92 cfs @ 6.76 fps)

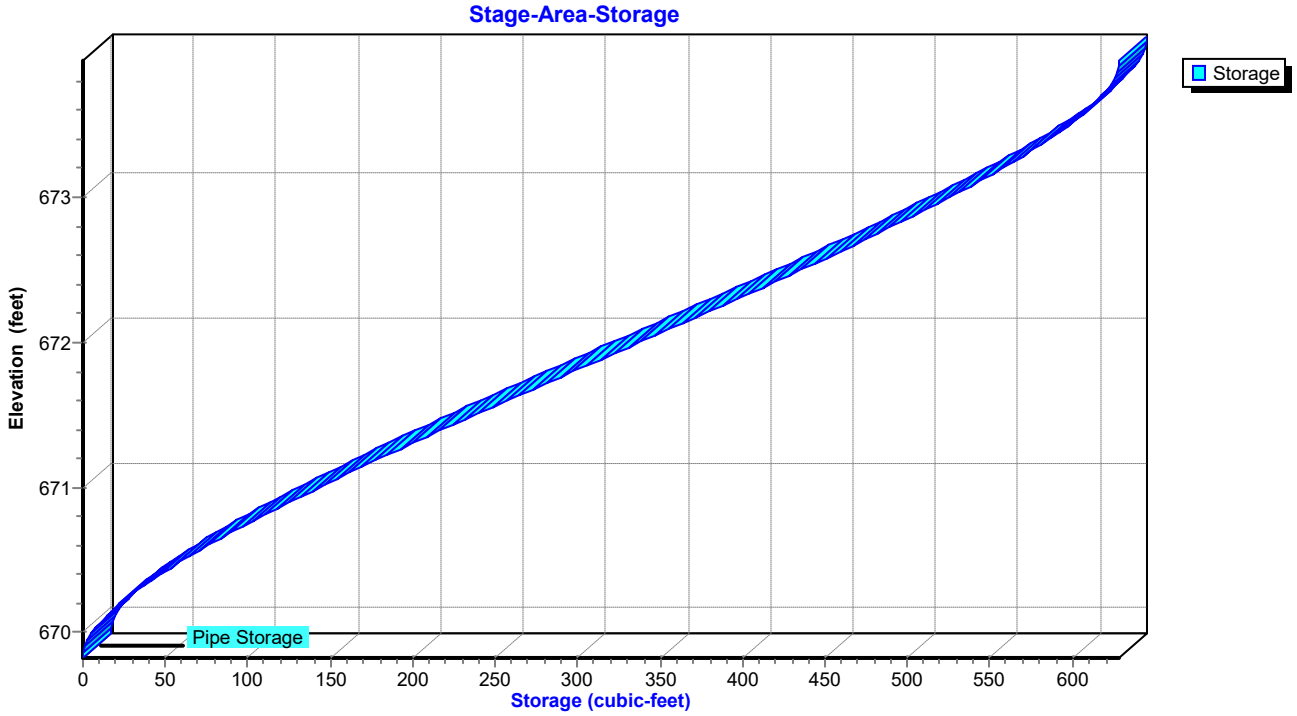
Pond 7P: 48" UG storage



Pond 7P: 48" UG storage



Pond 7P: 48" UG storage



Hydrograph for Pond 7P: 48" UG storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
5.00	0.00	0	669.83	0.00
5.50	0.00	0	669.84	0.00
6.00	0.00	0	669.84	0.00
6.50	0.00	0	669.84	0.00
7.00	0.00	0	669.84	0.00
7.50	0.00	0	669.84	0.00
8.00	0.03	3	669.95	0.03
8.50	0.03	3	669.96	0.03
9.00	0.03	3	669.96	0.03
9.50	0.04	4	669.99	0.04
10.00	0.05	5	669.99	0.05
10.50	0.05	6	670.00	0.05
11.00	0.07	8	670.03	0.07
11.50	0.09	10	670.06	0.09
12.00	**0.68**	136	670.96	0.50
12.50	**0.94**	**551**	**673.17**	**0.92**
13.00	0.54	**350**	**672.06**	**0.74**
13.50	0.40	112	670.82	0.46
14.00	0.24	34	670.30	0.26
14.50	0.20	25	670.21	0.20
15.00	0.17	21	670.18	0.17
15.50	0.13	16	670.13	0.14
16.00	0.11	13	670.09	0.11
16.50	0.10	12	670.08	0.10
17.00	0.10	11	670.08	0.10
17.50	0.09	9	670.06	0.08
18.00	0.08	9	670.05	0.08
18.50	0.07	8	670.04	0.08
19.00	0.07	8	670.03	0.07
19.50	0.07	8	670.03	0.07
20.00	0.07	8	670.03	0.07

Stage-Discharge for Pond 7P: 48" UG storage

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
669.82	0.00	672.37	0.79
669.87	0.00	672.42	0.80
669.92	0.02	672.47	0.81
669.97	0.04	672.52	0.82
670.02	0.06	672.57	0.83
670.07	0.09	672.62	0.83
670.12	0.13	672.67	0.84
670.17	0.16	672.72	0.85
670.22	0.20	672.77	0.86
670.27	0.24	672.82	0.87
670.32	0.27	672.87	0.87
670.37	0.30	672.92	0.88
670.42	0.32	672.97	0.89
670.47	0.34	673.02	0.90
670.52	0.36	673.07	0.90
670.57	0.38	673.12	0.91
670.62	0.40	673.17	0.92
670.67	0.42	673.22	0.93
670.72	0.43	673.27	0.93
670.77	0.45	673.32	0.94
670.82	0.46	673.37	0.95
670.87	0.48	673.42	0.95
670.92	0.49	673.47	0.96
670.97	0.50	673.52	0.97
671.02	0.52	673.57	0.98
671.07	0.53	673.62	0.98
671.12	0.54	673.67	0.99
671.17	0.55	673.72	1.00
671.22	0.57	673.77	1.00
671.27	0.58	673.82	1.01
671.32	0.59	673.87	1.02
671.37	0.60	673.92	**1.02**
671.42	0.61		
671.47	0.62		
671.52	0.63		
671.57	0.64		
671.62	0.65		
671.67	0.66		
671.72	0.67		
671.77	0.68		
671.82	0.69		
671.87	0.70		
671.92	0.71		
671.97	0.72		
672.02	0.73		
672.07	0.74		
672.12	0.75		
672.17	0.76		
672.22	0.77		
672.27	0.78		
672.32	0.78		

Stage-Area-Storage for Pond 7P: 48" UG storage

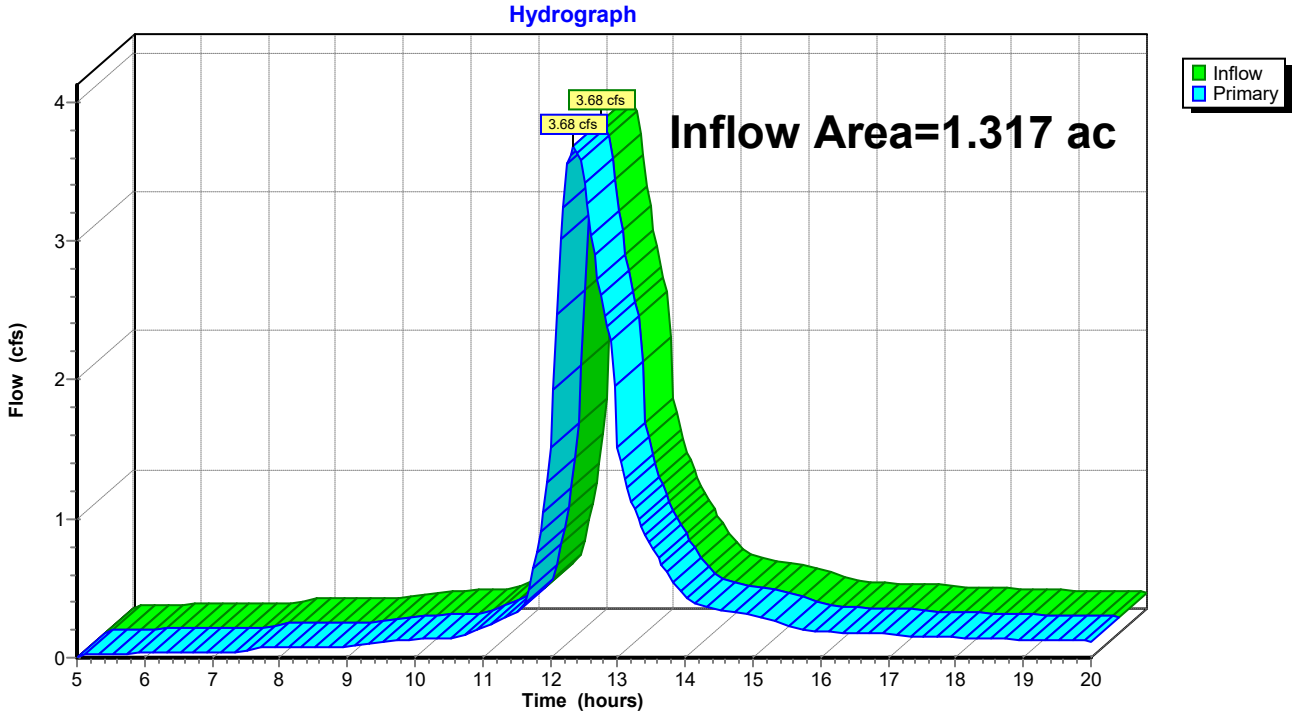
Elevation (feet)	Storage (cubic-feet)
669.82	0
669.87	0
669.92	1
669.97	4
670.02	7
670.07	11
670.12	15
670.17	20
670.22	25
670.27	31
670.32	37
670.37	43
670.42	50
670.47	57
670.52	64
670.57	72
670.62	79
670.67	87
670.72	95
670.77	103
670.82	112
670.87	120
670.92	129
670.97	138
671.02	147
671.07	156
671.12	165
671.17	174
671.22	184
671.27	193
671.32	203
671.37	212
671.42	222
671.47	232
671.52	242
671.57	251
671.62	261
671.67	271
671.72	281
671.77	291
671.82	301
671.87	311
671.92	321
671.97	331
672.02	341
672.07	351
672.12	361
672.17	371
672.22	381
672.27	391
672.32	400
672.37	410
672.42	420
672.47	429
672.52	439
672.57	448
672.62	458
672.67	467
672.72	476
672.77	485
672.82	494
672.87	503
672.92	511
672.97	520
673.02	528
673.07	536
673.12	544
673.17	552
673.22	560
673.27	567
673.32	574
673.37	581
673.42	587
673.47	594
673.52	600
673.57	605
673.62	610
673.67	615
673.72	619
673.77	623
673.82	626
673.87	628
673.92	**628**

Summary for Link 2L: (new Link)

Inflow Area = 1.317 ac, 48.47% Impervious, Inflow Depth > 4.41" for 100-Year event
Inflow = 3.68 cfs @ 12.35 hrs, Volume= 0.484 af
Primary = 3.68 cfs @ 12.35 hrs, Volume= 0.484 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: (new Link)



Hydrograph for Link 2L: (new Link)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.01	**0.00**	0.01
5.25	0.03	0.00	0.03
5.50	0.03	0.00	0.03
5.75	0.03	0.00	0.03
6.00	0.03	0.00	0.03
6.25	0.03	0.00	0.03
6.50	0.04	0.00	0.04
6.75	0.04	0.00	0.04
7.00	0.04	0.00	0.04
7.25	0.04	0.00	0.04
7.50	0.04	0.00	0.04
7.75	0.07	0.00	0.07
8.00	0.07	0.00	0.07
8.25	0.08	0.00	0.08
8.50	0.08	0.00	0.08
8.75	0.08	0.00	0.08
9.00	0.08	0.00	0.08
9.25	0.09	0.00	0.09
9.50	0.11	0.00	0.11
9.75	0.12	0.00	0.12
10.00	0.13	0.00	0.13
10.25	0.14	0.00	0.14
10.50	0.14	0.00	0.14
10.75	0.17	0.00	0.17
11.00	0.22	0.00	0.22
11.25	0.27	0.00	0.27
11.50	0.33	0.00	0.33
11.75	0.64	0.00	0.64
12.00	1.52	0.00	1.52
12.25	**3.56**	0.00	**3.56**
12.50	**3.41**	0.00	**3.41**
12.75	2.61	0.00	2.61
13.00	1.51	0.00	1.51
13.25	1.07	0.00	1.07
13.50	0.80	0.00	0.80
13.75	0.60	0.00	0.60
14.00	0.44	0.00	0.44
14.25	0.37	0.00	0.37
14.50	0.34	0.00	0.34
14.75	0.33	0.00	0.33
15.00	0.30	0.00	0.30
15.25	0.27	0.00	0.27
15.50	0.23	0.00	0.23
15.75	0.20	0.00	0.20
16.00	0.19	0.00	0.19
16.25	0.18	0.00	0.18
16.50	0.18	0.00	0.18
16.75	0.17	0.00	0.17
17.00	0.17	0.00	0.17
17.25	0.16	0.00	0.16
17.50	0.15	0.00	0.15
17.75	0.15	0.00	0.15
18.00	0.15	0.00	0.15
18.25	0.14	0.00	0.14
18.50	0.14	0.00	0.14
18.75	0.13	0.00	0.13
19.00	0.13	0.00	0.13
19.25	0.13	0.00	0.13
19.50	0.12	0.00	0.12
19.75	0.12	0.00	0.12
20.00	0.12	0.00	0.12

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.027	98	1/2 roof (7S)
0.046	98	N part driveway (4S)
0.005	98	N part parking lot (4S)
0.011	61	NDS 13 lawn (5S)
0.013	61	NDS 14-15 lawn berm, HSG B, good (5S)
0.015	98	NE 1/4 roof (1S)
0.014	98	NW 1/4 roof (8S)
0.055	98	S driveway (6S)
0.073	98	S part parking lot (3S)
0.004	98	SW (3S)
0.017	61	bark mulch landscape (6S)
0.015	100	bio media (1S, 4S)
0.005	61	landscape (4S)
0.018	61	lawn above wall (3S)
0.151	61	lawn, HSG B, good (1S, 3S, 4S, 6S)
0.014	98	retain wall (1S, 3S, 6S)
0.483	**82**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.164	HSG B	1S, 3S, 4S, 5S, 6S
0.000	HSG C	
0.000	HSG D	
0.319	Other	1S, 3S, 4S, 5S, 6S, 7S, 8S
0.483		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.027	0.027	1/2 roof	7S
0.000	0.000	0.000	0.000	0.046	0.046	N part driveway	4S
0.000	0.000	0.000	0.000	0.005	0.005	N part parking lot	4S
0.000	0.000	0.000	0.000	0.011	0.011	NDS 13 lawn	5S
0.000	0.013	0.000	0.000	0.000	0.013	NDS 14-15 lawn berm	5S
0.000	0.000	0.000	0.000	0.015	0.015	NE 1/4 roof	1S
0.000	0.000	0.000	0.000	0.014	0.014	NW 1/4 roof	8S
0.000	0.000	0.000	0.000	0.055	0.055	S driveway	6S
0.000	0.000	0.000	0.000	0.073	0.073	S part parking lot	3S
0.000	0.000	0.000	0.000	0.004	0.004	SW	3S
0.000	0.000	0.000	0.000	0.017	0.017	bark mulch landscape	6S
0.000	0.000	0.000	0.000	0.015	0.015	bio media	1S, 4S
0.000	0.000	0.000	0.000	0.005	0.005	landscape	4S
0.000	0.151	0.000	0.000	0.000	0.151	lawn	1S, 3S, 4S, 6S
0.000	0.000	0.000	0.000	0.018	0.018	lawn above wall	3S
0.000	0.000	0.000	0.000	0.014	0.014	retain wall	1S, 3S, 6S
0.000	**0.164**	**0.000**	**0.000**	**0.319**	**0.483**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	3R	676.38	675.93	87.0	0.0052	0.010	8.0	0.0	0.0
2	4R	668.80	658.52	77.0	0.1335	0.010	6.0	0.0	0.0
3	7P	668.82	668.80	4.0	0.0050	0.010	5.0	0.0	0.0

Notes Listing (all nodes)

Line#	Node Number	Notes
1	Project	Rainfall events imported from "NRCS-Rain.txt" for 9170 WI La Crosse
2		Rainfall events imported from "NRCS-Rain.txt" for 9170 WI La Crosse

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: To E Biofilter Runoff Area=1,875 sf 57.33% Impervious Runoff Depth>1.63"
Flow Length=25' Tc=8.0 min CN=WQ Runoff=0.09 cfs 0.006 af

Subcatchment 3S: to curb inlet Runoff Area=5,020 sf 68.92% Impervious Runoff Depth>1.88"
Flow Length=150' Tc=10.0 min CN=WQ Runoff=0.26 cfs 0.018 af

Subcatchment 4S: to W biofilter Runoff Area=4,490 sf 59.91% Impervious Runoff Depth>1.68"
Flow Length=140' Tc=6.0 min CN=WQ Runoff=0.24 cfs 0.014 af

Subcatchment 5S: to NDS 13-14-15 Runoff Area=1,050 sf 0.00% Impervious Runoff Depth>0.31"
Flow Length=175' Tc=8.0 min CN=WQ Runoff=0.01 cfs 0.001 af

Subcatchment 6S: untreated Runoff Area=6,820 sf 39.15% Impervious Runoff Depth>1.20"
Flow Length=100' Tc=15.0 min CN=WQ Runoff=0.19 cfs 0.016 af

Subcatchment 7S: S 1/2 roof to 8" PVC Runoff Area=1,190 sf 100.00% Impervious Runoff Depth>2.58"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.10 cfs 0.006 af

Subcatchment 8S: NW 1/4 roof Runoff Area=595 sf 100.00% Impervious Runoff Depth>2.58"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.05 cfs 0.003 af

Reach 3R: S. 8" PVC Avg. Flow Depth=0.14' Max Vel=2.02 fps Inflow=0.11 cfs 0.006 af
8.0" Round Pipe n=0.010 L=87.0' S=0.0052 '/' Capacity=1.13 cfs Outflow=0.10 cfs 0.006 af

Reach 4R: W. 6" PVC Avg. Flow Depth=0.09' Max Vel=7.94 fps Inflow=0.20 cfs 0.040 af
6.0" Round Pipe n=0.010 L=77.0' S=0.1335 '/' Capacity=2.67 cfs Outflow=0.20 cfs 0.040 af

Pond 3P: E biofilter LINED Peak Elev=680.51' Storage=121 cf Inflow=0.09 cfs 0.006 af
Primary=0.03 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.005 af

Pond 5P: W biofillter UNLINED Peak Elev=675.85' Storage=832 cf Inflow=0.49 cfs 0.032 af
Discarded=0.00 cfs 0.000 af Primary=0.06 cfs 0.026 af Secondary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.026 af

Pond 7P: 48" UG storage Peak Elev=669.22' Storage=25 cf Inflow=0.21 cfs 0.040 af
5.0" Round Culvert n=0.010 L=4.0' S=0.0050 '/' Outflow=0.20 cfs 0.040 af

Link 2L: frontage rd Inflow=0.37 cfs 0.055 af
Primary=0.37 cfs 0.055 af

Total Runoff Area = 0.483 ac Runoff Volume = 0.063 af Average Runoff Depth = 1.57"
44.49% Pervious = 0.215 ac 55.51% Impervious = 0.268 ac

Summary for Subcatchment 1S: To E Biofilter

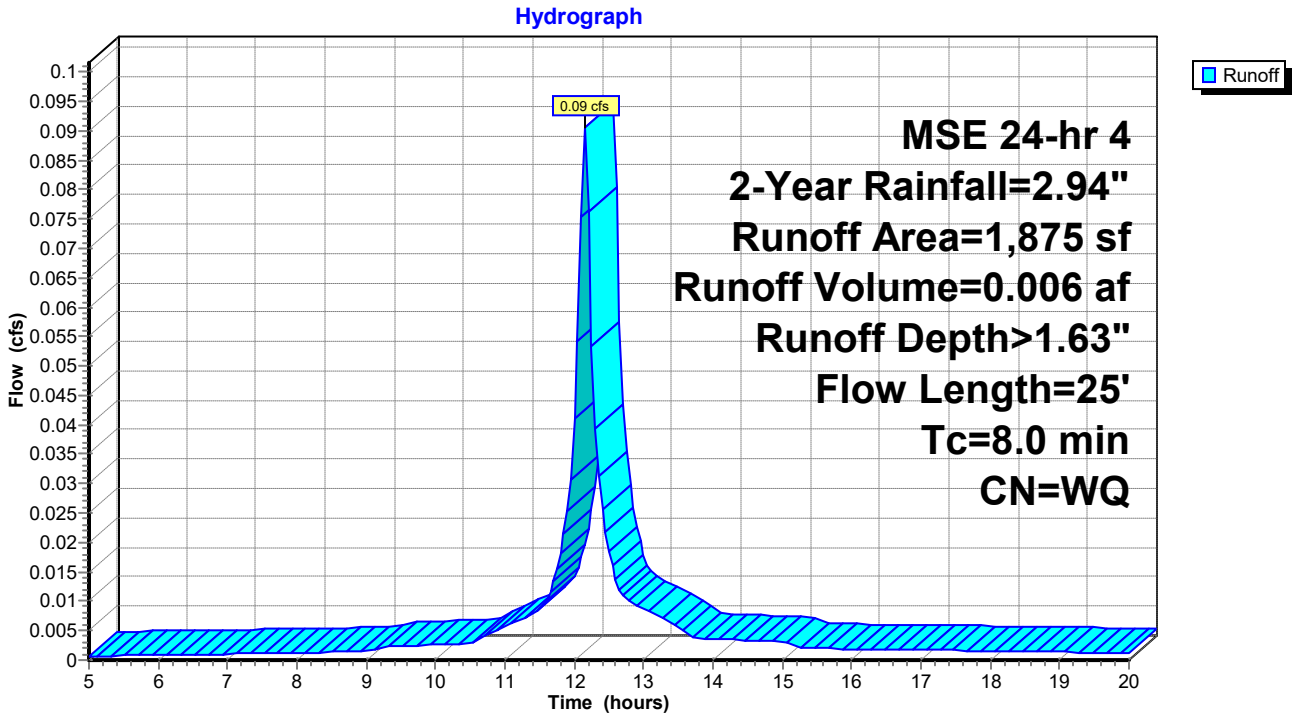
Runoff = 0.09 cfs @ 12.15 hrs, Volume= 0.006 af, Depth> 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	800	61	lawn, HSG B, good
*	645	98	NE 1/4 roof
*	210	100	bio media
*	220	98	retain wall
	1,875		Weighted Average
	800		42.67% Pervious Area
	1,075		57.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	25		0.05		**Direct Entry, lawn above wall to E bio**

Subcatchment 1S: To E Biofilter



Hydrograph for Subcatchment 1S: To E Biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.00
5.75	0.17	0.00	0.00
6.00	0.18	0.00	0.00
6.25	0.19	0.00	0.00
6.50	0.21	0.00	0.00
6.75	0.22	0.00	0.00
7.00	0.23	0.00	0.00
7.25	0.25	0.00	0.00
7.50	0.26	0.00	0.00
7.75	0.28	0.00	0.00
8.00	0.29	0.00	0.00
8.25	0.31	0.00	0.00
8.50	0.32	0.00	0.00
8.75	0.34	0.00	0.00
9.00	0.36	0.00	0.00
9.25	0.38	0.00	0.00
9.50	0.41	0.00	0.00
9.75	0.44	0.00	0.00
10.00	0.47	0.00	0.00
10.25	0.50	0.00	0.00
10.50	0.53	0.00	0.00
10.75	0.57	0.01	0.00
11.00	0.64	0.02	0.01
11.25	0.71	0.03	0.01
11.50	0.80	0.05	0.01
11.75	0.96	0.10	0.02
12.00	1.38	0.28	**0.04**
12.25	1.98	0.63	**0.05**
12.50	2.14	0.74	0.02
12.75	2.23	0.80	0.01
13.00	2.30	0.86	0.01
13.25	2.37	0.90	0.01
13.50	2.41	0.94	0.01
13.75	2.44	0.96	0.00
14.00	2.47	0.98	0.00
14.25	2.50	1.00	0.00
14.50	2.53	1.02	0.00
14.75	2.56	1.04	0.00
15.00	2.58	1.06	0.00
15.25	2.60	1.07	0.00
15.50	2.62	1.08	0.00
15.75	2.63	1.10	0.00
16.00	2.65	1.11	0.00
16.25	2.66	1.12	0.00
16.50	2.68	1.13	0.00
16.75	2.69	1.14	0.00
17.00	2.71	1.15	0.00
17.25	2.72	1.16	0.00
17.50	2.73	1.17	0.00
17.75	2.75	1.18	0.00
18.00	2.76	1.19	0.00
18.25	2.77	1.20	0.00
18.50	2.78	1.21	0.00
18.75	2.79	1.22	0.00
19.00	2.81	1.23	0.00
19.25	2.82	1.24	0.00
19.50	2.83	1.24	0.00
19.75	2.84	1.25	0.00
20.00	**2.84**	**1.26**	0.00

Summary for Subcatchment 3S: to curb inlet

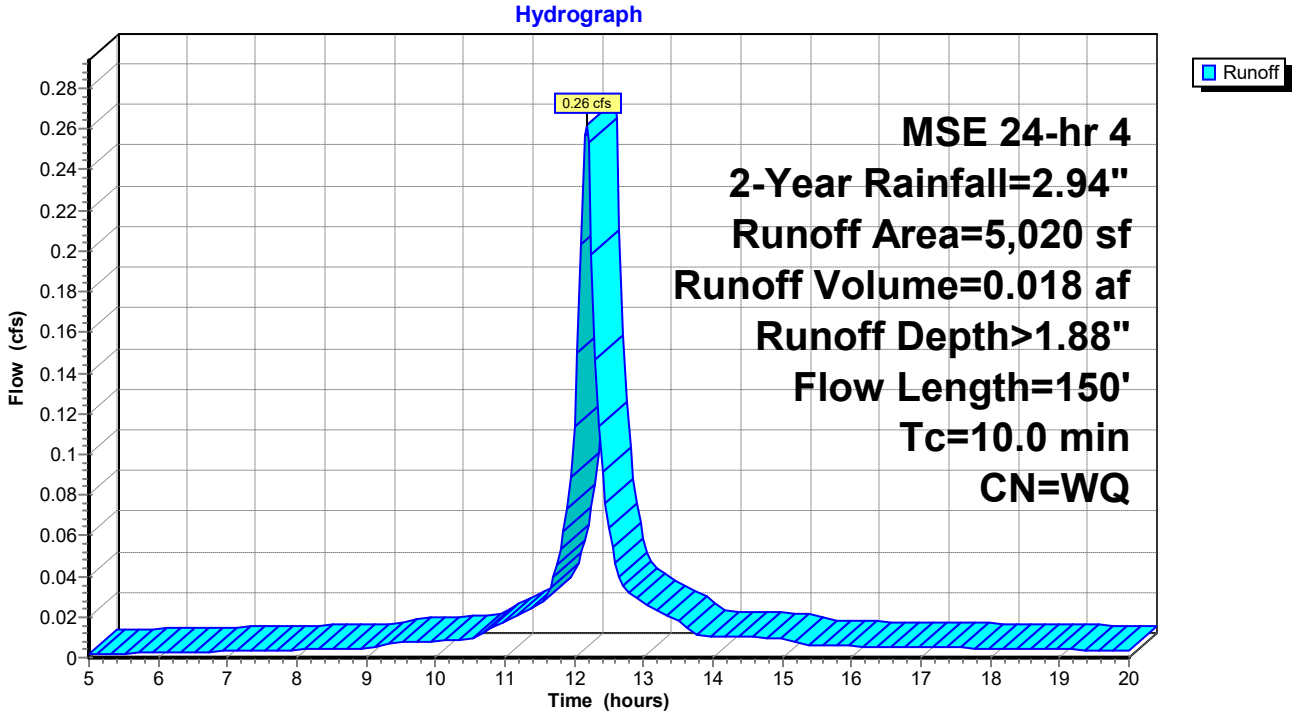
Runoff = 0.26 cfs @ 12.17 hrs, Volume= 0.018 af, Depth> 1.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	3,200	98	S part parking lot
*	160	98	SW
*	780	61	lawn, HSG B, good
*	780	61	lawn above wall
*	100	98	retain wall
	5,020		Weighted Average
	1,560		31.08% Pervious Area
	3,460		68.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	150		0.25		**Direct Entry, LAXVC lawn via AC pavement**

Subcatchment 3S: to curb inlet



Hydrograph for Subcatchment 3S: to curb inlet

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.00
5.75	0.17	0.00	0.00
6.00	0.18	0.00	0.00
6.25	0.19	0.00	0.00
6.50	0.21	0.00	0.00
6.75	0.22	0.00	0.00
7.00	0.23	0.00	0.00
7.25	0.25	0.00	0.00
7.50	0.26	0.00	0.00
7.75	0.28	0.00	0.00
8.00	0.29	0.00	0.00
8.25	0.31	0.00	0.00
8.50	0.32	0.00	0.00
8.75	0.34	0.00	0.00
9.00	0.36	0.00	0.00
9.25	0.38	0.00	0.01
9.50	0.41	0.01	0.01
9.75	0.44	0.01	0.01
10.00	0.47	0.02	0.01
10.25	0.50	0.02	0.01
10.50	0.53	0.03	0.01
10.75	0.57	0.04	0.01
11.00	0.64	0.06	0.02
11.25	0.71	0.09	0.02
11.50	0.80	0.13	0.03
11.75	0.96	0.20	0.05
12.00	1.38	0.45	**0.11**
12.25	1.98	0.89	**0.20**
12.50	2.14	1.02	0.06
12.75	2.23	1.09	0.03
13.00	2.30	1.15	0.03
13.25	2.37	1.20	0.02
13.50	2.41	1.24	0.02
13.75	2.44	1.26	0.01
14.00	2.47	1.29	0.01
14.25	2.50	1.31	0.01
14.50	2.53	1.34	0.01
14.75	2.56	1.36	0.01
15.00	2.58	1.38	0.01
15.25	2.60	1.40	0.01
15.50	2.62	1.41	0.01
15.75	2.63	1.42	0.01
16.00	2.65	1.44	0.01
16.25	2.66	1.45	0.01
16.50	2.68	1.46	0.01
16.75	2.69	1.47	0.01
17.00	2.71	1.49	0.01
17.25	2.72	1.50	0.01
17.50	2.73	1.51	0.00
17.75	2.75	1.52	0.00
18.00	2.76	1.53	0.00
18.25	2.77	1.54	0.00
18.50	2.78	1.55	0.00
18.75	2.79	1.56	0.00
19.00	2.81	1.57	0.00
19.25	2.82	1.58	0.00
19.50	2.83	1.59	0.00
19.75	2.84	1.60	0.00
20.00	**2.84**	**1.60**	0.00

Summary for Subcatchment 4S: to W biofilter

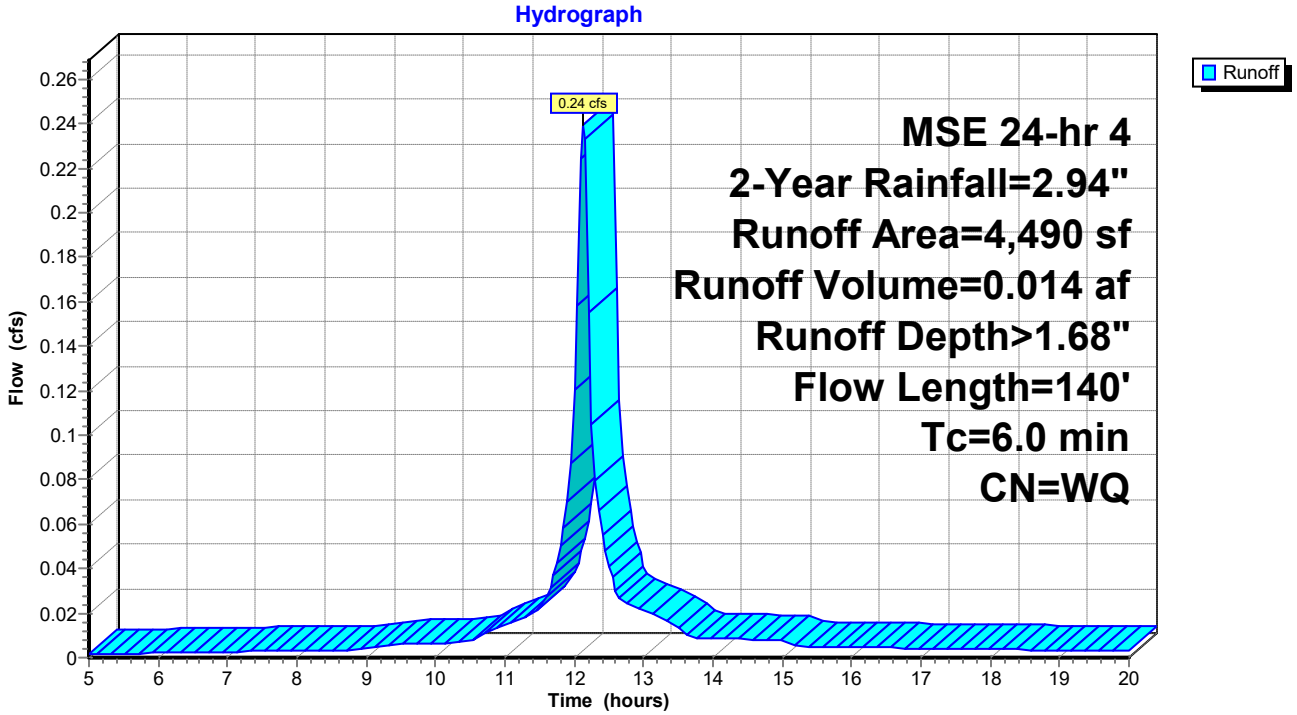
Runoff = 0.24 cfs @ 12.13 hrs, Volume= 0.014 af, Depth> 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	2,000	98	N part driveway
*	230	98	N part parking lot
*	1,600	61	lawn, HSG B, good
*	460	100	bio media
*	200	61	landscape
	4,490		Weighted Average
	1,800		40.09% Pervious Area
	2,690		59.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	140		0.39		**Direct Entry, lawn via parking**

Subcatchment 4S: to W biofilter



Hydrograph for Subcatchment 4S: to W biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.00
5.75	0.17	0.00	0.00
6.00	0.18	0.00	0.00
6.25	0.19	0.00	0.00
6.50	0.21	0.00	0.00
6.75	0.22	0.00	0.00
7.00	0.23	0.00	0.00
7.25	0.25	0.00	0.00
7.50	0.26	0.00	0.00
7.75	0.28	0.00	0.00
8.00	0.29	0.00	0.00
8.25	0.31	0.00	0.00
8.50	0.32	0.00	0.00
8.75	0.34	0.00	0.00
9.00	0.36	0.00	0.00
9.25	0.38	0.00	0.01
9.50	0.41	0.00	0.01
9.75	0.44	0.00	0.01
10.00	0.47	0.00	0.01
10.25	0.50	0.00	0.01
10.50	0.53	0.01	0.01
10.75	0.57	0.01	0.01
11.00	0.64	0.02	0.01
11.25	0.71	0.04	0.02
11.50	0.80	0.06	0.02
11.75	0.96	0.12	0.04
12.00	1.38	0.31	**0.12**
12.25	1.98	0.68	**0.10**
12.50	2.14	0.79	0.04
12.75	2.23	0.86	0.02
13.00	2.30	0.91	0.02
13.25	2.37	0.96	0.02
13.50	2.41	0.99	0.01
13.75	2.44	1.01	0.01
14.00	2.47	1.04	0.01
14.25	2.50	1.06	0.01
14.50	2.53	1.08	0.01
14.75	2.56	1.10	0.01
15.00	2.58	1.12	0.01
15.25	2.60	1.13	0.01
15.50	2.62	1.15	0.00
15.75	2.63	1.16	0.00
16.00	2.65	1.17	0.00
16.25	2.66	1.18	0.00
16.50	2.68	1.19	0.00
16.75	2.69	1.20	0.00
17.00	2.71	1.21	0.00
17.25	2.72	1.23	0.00
17.50	2.73	1.24	0.00
17.75	2.75	1.25	0.00
18.00	2.76	1.26	0.00
18.25	2.77	1.26	0.00
18.50	2.78	1.27	0.00
18.75	2.79	1.28	0.00
19.00	2.81	1.29	0.00
19.25	2.82	1.30	0.00
19.50	2.83	1.31	0.00
19.75	2.84	1.32	0.00
20.00	**2.84**	**1.32**	0.00

Summary for Subcatchment 5S: to NDS 13-14-15

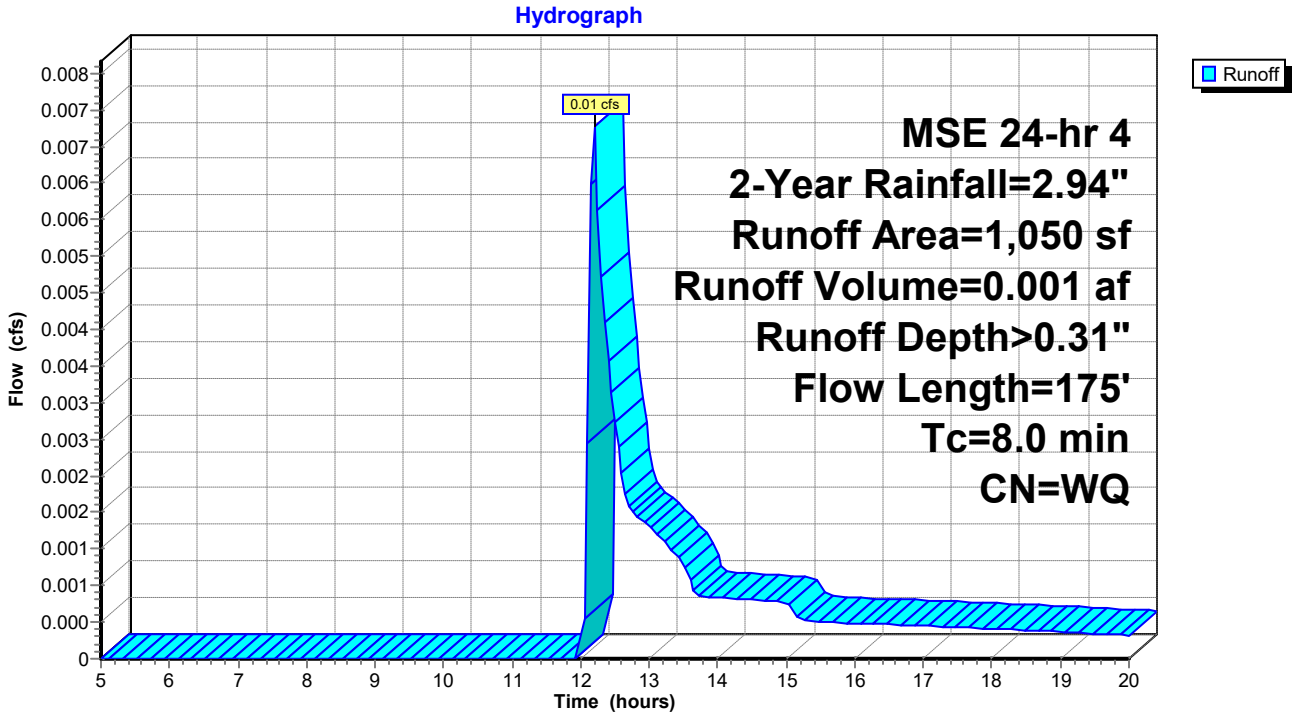
Runoff = 0.01 cfs @ 12.20 hrs, Volume= 0.001 af, Depth> 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	550	61	NDS 14-15 lawn berm, HSG B, good
*	500	61	NDS 13 lawn
	1,050		Weighted Average
	1,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	175		0.36		**Direct Entry, lawn berm**

Subcatchment 5S: to NDS 13-14-15



Hydrograph for Subcatchment 5S: to NDS 13-14-15

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.00
5.75	0.17	0.00	0.00
6.00	0.18	0.00	0.00
6.25	0.19	0.00	0.00
6.50	0.21	0.00	0.00
6.75	0.22	0.00	0.00
7.00	0.23	0.00	0.00
7.25	0.25	0.00	0.00
7.50	0.26	0.00	0.00
7.75	0.28	0.00	0.00
8.00	0.29	0.00	0.00
8.25	0.31	0.00	0.00
8.50	0.32	0.00	0.00
8.75	0.34	0.00	0.00
9.00	0.36	0.00	0.00
9.25	0.38	0.00	0.00
9.50	0.41	0.00	0.00
9.75	0.44	0.00	0.00
10.00	0.47	0.00	0.00
10.25	0.50	0.00	0.00
10.50	0.53	0.00	0.00
10.75	0.57	0.00	0.00
11.00	0.64	0.00	0.00
11.25	0.71	0.00	0.00
11.50	0.80	0.00	0.00
11.75	0.96	0.00	0.00
12.00	1.38	0.00	**0.00**
12.25	1.98	0.07	**0.01**
12.50	2.14	0.10	0.00
12.75	2.23	0.12	0.00
13.00	2.30	0.14	0.00
13.25	2.37	0.16	0.00
13.50	2.41	0.17	0.00
13.75	2.44	0.18	0.00
14.00	2.47	0.19	0.00
14.25	2.50	0.20	0.00
14.50	2.53	0.21	0.00
14.75	2.56	0.21	0.00
15.00	2.58	0.22	0.00
15.25	2.60	0.23	0.00
15.50	2.62	0.23	0.00
15.75	2.63	0.24	0.00
16.00	2.65	0.24	0.00
16.25	2.66	0.25	0.00
16.50	2.68	0.25	0.00
16.75	2.69	0.26	0.00
17.00	2.71	0.26	0.00
17.25	2.72	0.27	0.00
17.50	2.73	0.27	0.00
17.75	2.75	0.27	0.00
18.00	2.76	0.28	0.00
18.25	2.77	0.28	0.00
18.50	2.78	0.29	0.00
18.75	2.79	0.29	0.00
19.00	2.81	0.29	0.00
19.25	2.82	0.30	0.00
19.50	2.83	0.30	0.00
19.75	2.84	0.30	0.00
20.00	**2.84**	**0.31**	0.00

Summary for Subcatchment 6S: untreated

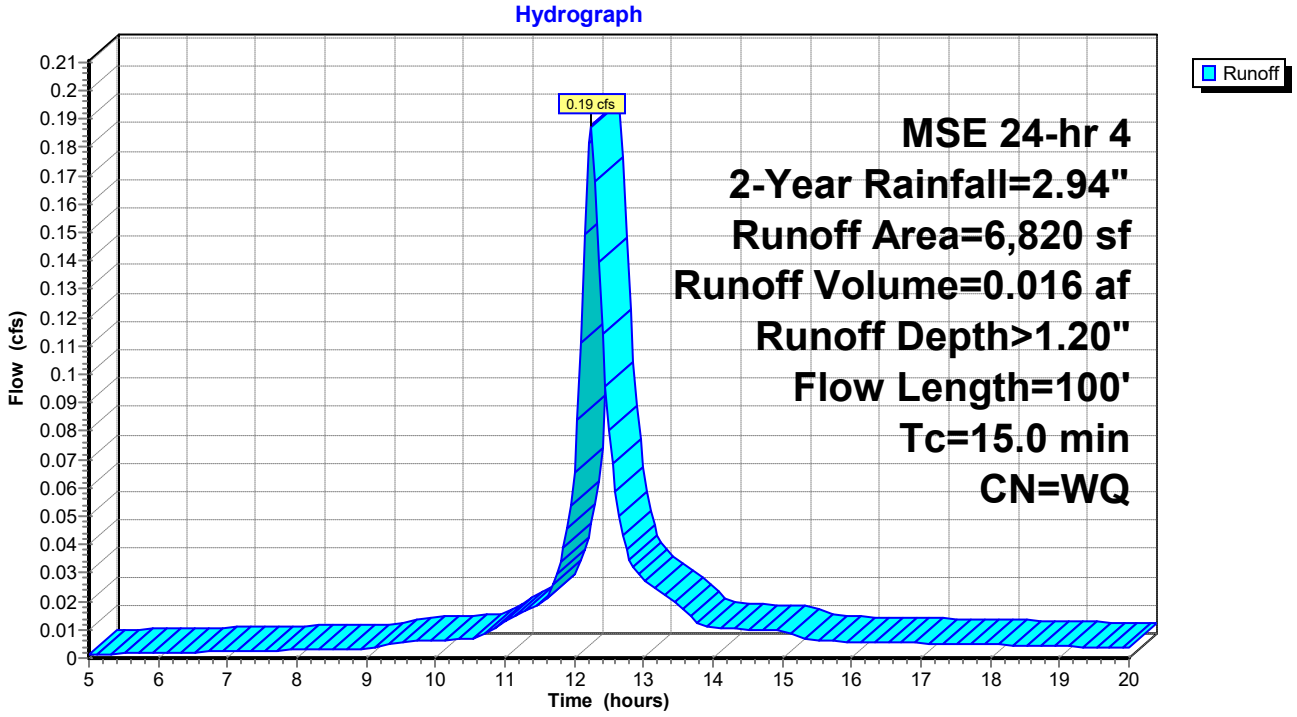
Runoff = 0.19 cfs @ 12.24 hrs, Volume= 0.016 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	2,400	98	S driveway
*	3,400	61	lawn, HSG B, good
*	750	61	bark mulch landscape
*	270	98	retain wall
	6,820		Weighted Average
	4,150		60.85% Pervious Area
	2,670		39.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100		0.11		**Direct Entry, landscape to street**

Subcatchment 6S: untreated



Hydrograph for Subcatchment 6S: untreated

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.00
5.75	0.17	0.00	0.00
6.00	0.18	0.00	0.00
6.25	0.19	0.00	0.00
6.50	0.21	0.00	0.00
6.75	0.22	0.00	0.00
7.00	0.23	0.00	0.00
7.25	0.25	0.00	0.00
7.50	0.26	0.00	0.00
7.75	0.28	0.00	0.00
8.00	0.29	0.00	0.00
8.25	0.31	0.00	0.00
8.50	0.32	0.00	0.00
8.75	0.34	0.00	0.00
9.00	0.36	0.00	0.00
9.25	0.38	0.00	0.00
9.50	0.41	0.00	0.01
9.75	0.44	0.00	0.01
10.00	0.47	0.00	0.01
10.25	0.50	0.00	0.01
10.50	0.53	0.00	0.01
10.75	0.57	0.00	0.01
11.00	0.64	0.00	0.01
11.25	0.71	0.00	0.02
11.50	0.80	0.00	0.02
11.75	0.96	0.02	0.03
12.00	1.38	0.12	0.07
12.25	1.98	0.37	**0.19**
12.50	2.14	0.45	0.08
12.75	2.23	0.50	0.04
13.00	2.30	0.54	0.03
13.25	2.37	0.57	0.02
13.50	2.41	0.60	0.02
13.75	2.44	0.62	0.01
14.00	2.47	0.64	0.01
14.25	2.50	0.65	0.01
14.50	2.53	0.67	0.01
14.75	2.56	0.68	0.01
15.00	2.58	0.70	0.01
15.25	2.60	0.71	0.01
15.50	2.62	0.72	0.01
15.75	2.63	0.73	0.01
16.00	2.65	0.74	0.01
16.25	2.66	0.75	0.01
16.50	2.68	0.76	0.01
16.75	2.69	0.77	0.01
17.00	2.71	0.77	0.01
17.25	2.72	0.78	0.01
17.50	2.73	0.79	0.01
17.75	2.75	0.80	0.00
18.00	2.76	0.81	0.00
18.25	2.77	0.81	0.00
18.50	2.78	0.82	0.00
18.75	2.79	0.83	0.00
19.00	2.81	0.84	0.00
19.25	2.82	0.84	0.00
19.50	2.83	0.85	0.00
19.75	2.84	0.85	0.00
20.00	**2.84**	**0.86**	0.00

Summary for Subcatchment 7S: S 1/2 roof to 8" PVC

[49] Hint: Tc<2dt may require smaller dt

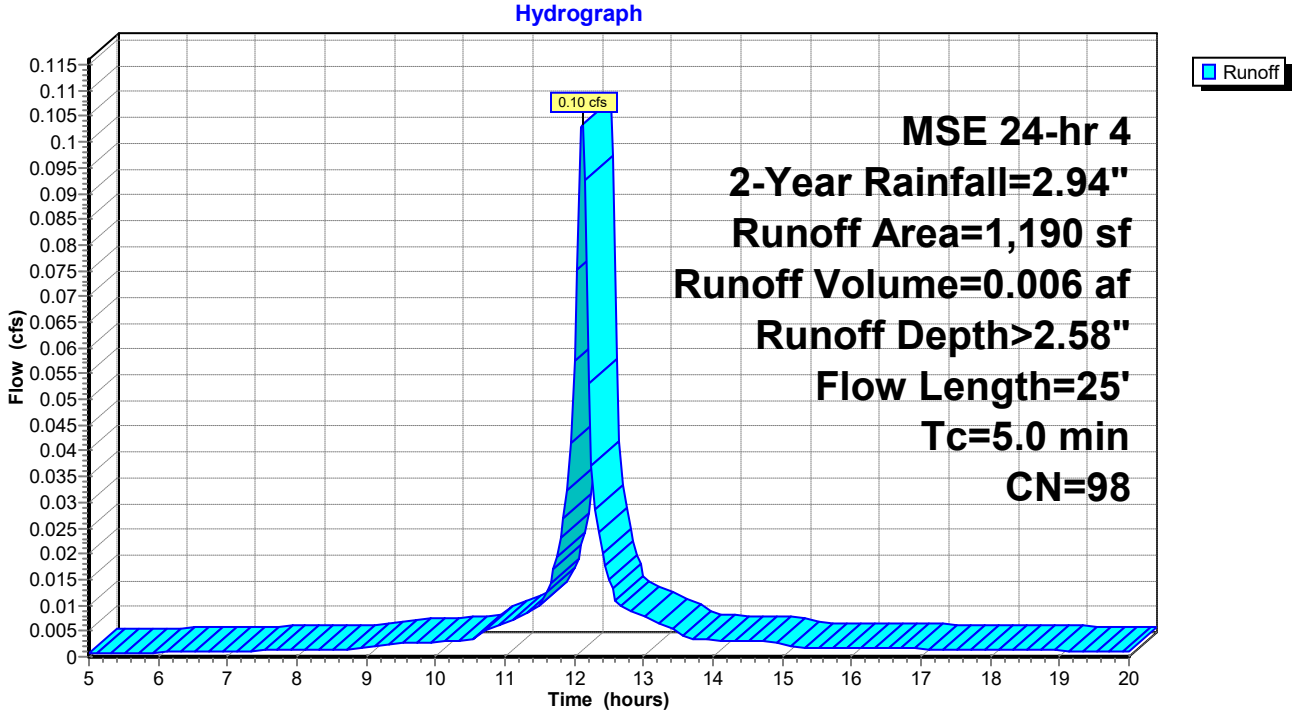
Runoff = 0.10 cfs @ 12.11 hrs, Volume= 0.006 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	1,190	98	1/2 roof
	1,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, S 1/2 roof**

Subcatchment 7S: S 1/2 roof to 8" PVC



Hydrograph for Subcatchment 7S: S 1/2 roof to 8" PVC

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.03	0.00
5.25	0.15	0.04	0.00
5.50	0.16	0.04	0.00
5.75	0.17	0.05	0.00
6.00	0.18	0.06	0.00
6.25	0.19	0.07	0.00
6.50	0.21	0.07	0.00
6.75	0.22	0.08	0.00
7.00	0.23	0.09	0.00
7.25	0.25	0.10	0.00
7.50	0.26	0.11	0.00
7.75	0.28	0.13	0.00
8.00	0.29	0.14	0.00
8.25	0.31	0.15	0.00
8.50	0.32	0.16	0.00
8.75	0.34	0.18	0.00
9.00	0.36	0.19	0.00
9.25	0.38	0.21	0.00
9.50	0.41	0.24	0.00
9.75	0.44	0.26	0.00
10.00	0.47	0.29	0.00
10.25	0.50	0.31	0.00
10.50	0.53	0.34	0.00
10.75	0.57	0.39	0.01
11.00	0.64	0.44	0.01
11.25	0.71	0.51	0.01
11.50	0.80	0.60	0.01
11.75	0.96	0.76	0.02
12.00	1.38	1.16	**0.06**
12.25	1.98	1.75	**0.04**
12.50	2.14	1.91	0.02
12.75	2.23	2.00	0.01
13.00	2.30	2.08	0.01
13.25	2.37	2.14	0.01
13.50	2.41	2.19	0.01
13.75	2.44	2.22	0.00
14.00	2.47	2.25	0.00
14.25	2.50	2.27	0.00
14.50	2.53	2.30	0.00
14.75	2.56	2.33	0.00
15.00	2.58	2.35	0.00
15.25	2.60	2.37	0.00
15.50	2.62	2.39	0.00
15.75	2.63	2.40	0.00
16.00	2.65	2.42	0.00
16.25	2.66	2.43	0.00
16.50	2.68	2.45	0.00
16.75	2.69	2.46	0.00
17.00	2.71	2.48	0.00
17.25	2.72	2.49	0.00
17.50	2.73	2.50	0.00
17.75	2.75	2.52	0.00
18.00	2.76	2.53	0.00
18.25	2.77	2.54	0.00
18.50	2.78	2.55	0.00
18.75	2.79	2.56	0.00
19.00	2.81	2.57	0.00
19.25	2.82	2.58	0.00
19.50	2.83	2.59	0.00
19.75	2.84	2.60	0.00
20.00	**2.84**	**2.61**	0.00

Summary for Subcatchment 8S: NW 1/4 roof

[49] Hint: Tc<2dt may require smaller dt

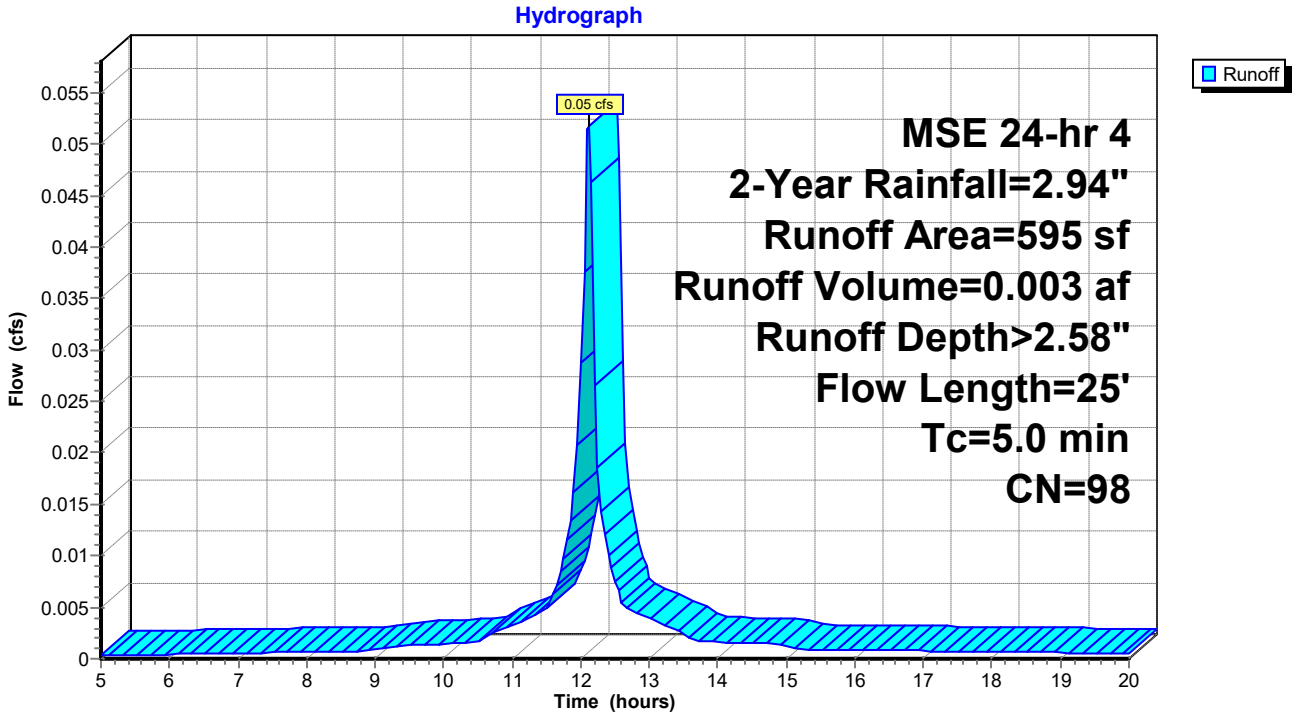
Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.003 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	595	98	NW 1/4 roof
	595		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, NW 1/4 roof**

Subcatchment 8S: NW 1/4 roof



Hydrograph for Subcatchment 8S: NW 1/4 roof

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.03	0.00
5.25	0.15	0.04	0.00
5.50	0.16	0.04	0.00
5.75	0.17	0.05	0.00
6.00	0.18	0.06	0.00
6.25	0.19	0.07	0.00
6.50	0.21	0.07	0.00
6.75	0.22	0.08	0.00
7.00	0.23	0.09	0.00
7.25	0.25	0.10	0.00
7.50	0.26	0.11	0.00
7.75	0.28	0.13	0.00
8.00	0.29	0.14	0.00
8.25	0.31	0.15	0.00
8.50	0.32	0.16	0.00
8.75	0.34	0.18	0.00
9.00	0.36	0.19	0.00
9.25	0.38	0.21	0.00
9.50	0.41	0.24	0.00
9.75	0.44	0.26	0.00
10.00	0.47	0.29	0.00
10.25	0.50	0.31	0.00
10.50	0.53	0.34	0.00
10.75	0.57	0.39	0.00
11.00	0.64	0.44	0.00
11.25	0.71	0.51	0.00
11.50	0.80	0.60	0.00
11.75	0.96	0.76	0.01
12.00	1.38	1.16	**0.03**
12.25	1.98	1.75	**0.02**
12.50	2.14	1.91	0.01
12.75	2.23	2.00	0.00
13.00	2.30	2.08	0.00
13.25	2.37	2.14	0.00
13.50	2.41	2.19	0.00
13.75	2.44	2.22	0.00
14.00	2.47	2.25	0.00
14.25	2.50	2.27	0.00
14.50	2.53	2.30	0.00
14.75	2.56	2.33	0.00
15.00	2.58	2.35	0.00
15.25	2.60	2.37	0.00
15.50	2.62	2.39	0.00
15.75	2.63	2.40	0.00
16.00	2.65	2.42	0.00
16.25	2.66	2.43	0.00
16.50	2.68	2.45	0.00
16.75	2.69	2.46	0.00
17.00	2.71	2.48	0.00
17.25	2.72	2.49	0.00
17.50	2.73	2.50	0.00
17.75	2.75	2.52	0.00
18.00	2.76	2.53	0.00
18.25	2.77	2.54	0.00
18.50	2.78	2.55	0.00
18.75	2.79	2.56	0.00
19.00	2.81	2.57	0.00
19.25	2.82	2.58	0.00
19.50	2.83	2.59	0.00
19.75	2.84	2.60	0.00
20.00	**2.84**	**2.61**	0.00

Summary for Reach 3R: S. 8" PVC

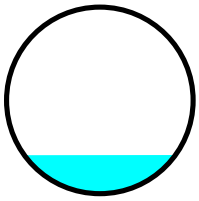
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.051 ac, 53.13% Impervious, Inflow Depth > 1.52" for 2-Year event
Inflow = 0.11 cfs @ 12.12 hrs, Volume= 0.006 af
Outflow = 0.10 cfs @ 12.14 hrs, Volume= 0.006 af, Atten= 4%, Lag= 1.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.02 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 0.70 fps, Avg. Travel Time= 2.1 min

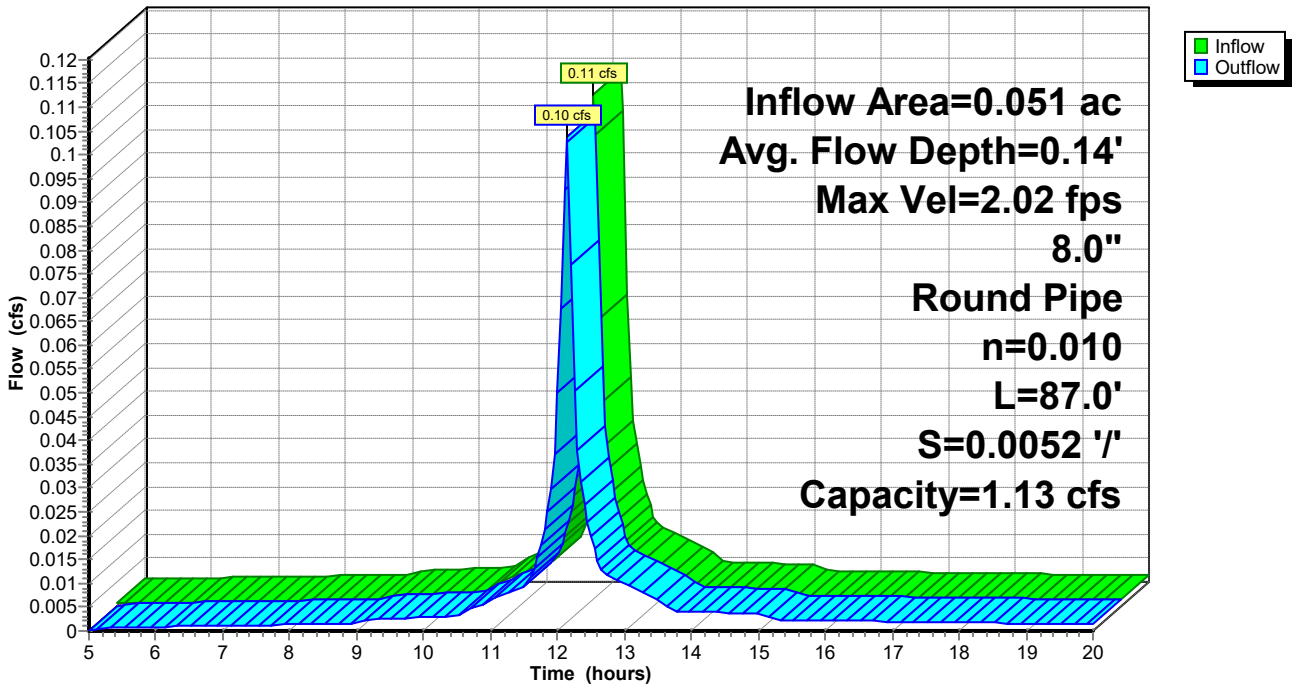
Peak Storage= 5 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.13 cfs

8.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 87.0' Slope= 0.0052 '/'
Inlet Invert= 676.38', Outlet Invert= 675.93'



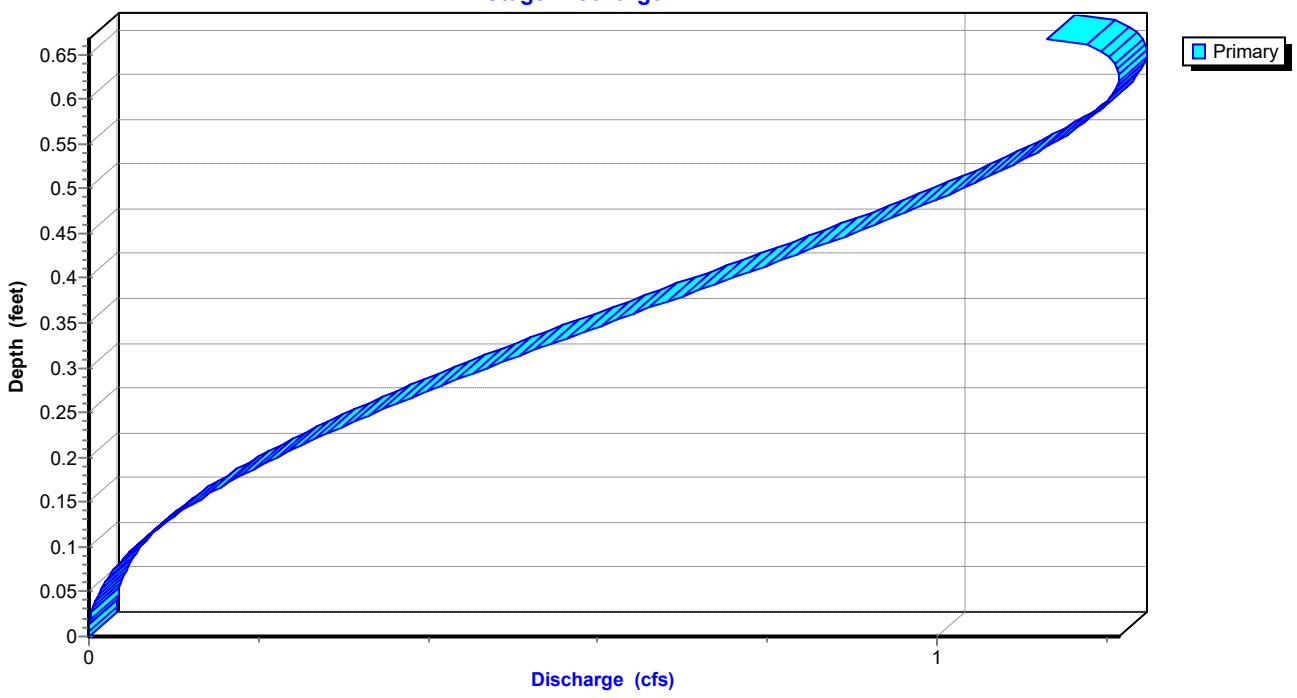
Reach 3R: S. 8" PVC

Hydrograph

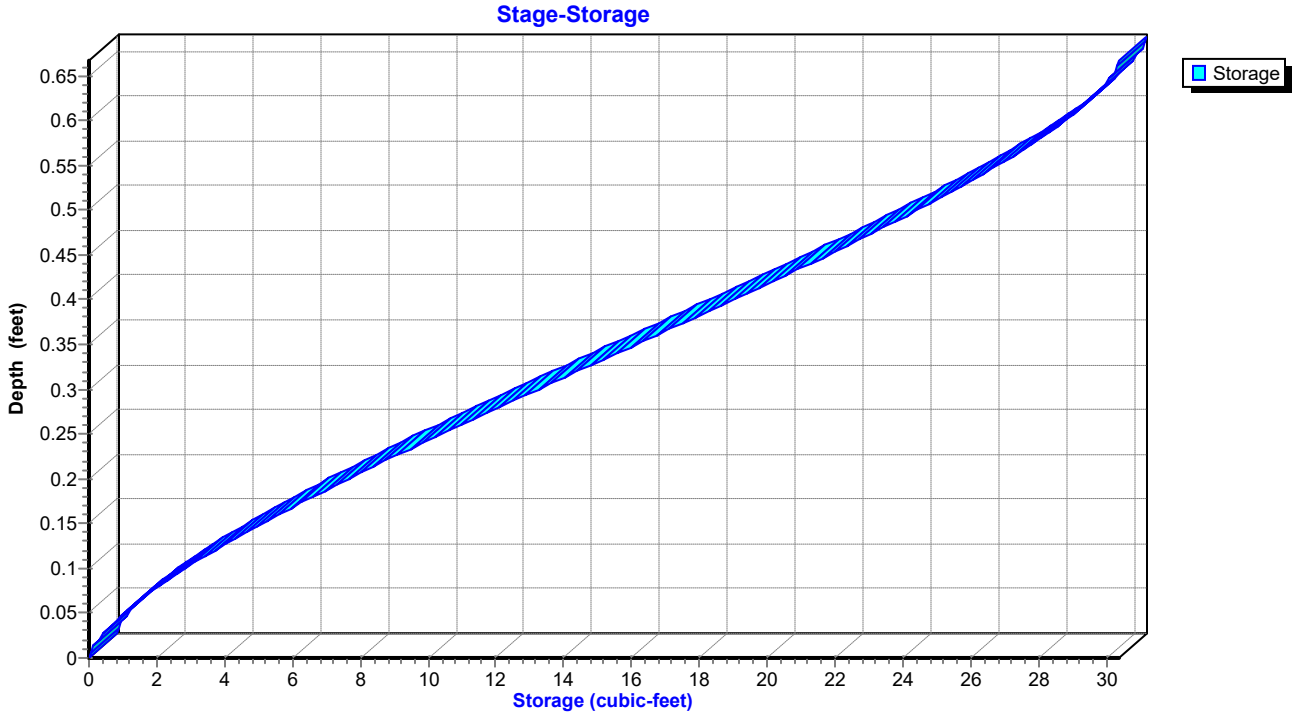


Reach 3R: S. 8" PVC

Stage-Discharge



Reach 3R: S. 8" PVC



Hydrograph for Reach 3R: S. 8" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	676.38	0.00
5.50	0.00	0	676.39	0.00
6.00	0.00	0	676.39	0.00
6.50	0.00	0	676.39	0.00
7.00	0.00	0	676.40	0.00
7.50	0.00	0	676.40	0.00
8.00	0.00	0	676.40	0.00
8.50	0.00	0	676.40	0.00
9.00	0.00	0	676.40	0.00
9.50	0.00	0	676.40	0.00
10.00	0.00	0	676.40	0.00
10.50	0.00	0	676.41	0.00
11.00	0.01	1	676.42	0.01
11.50	0.01	1	676.42	0.01
12.00	**0.06**	**3**	**676.48**	**0.05**
12.50	**0.02**	**1**	**676.44**	**0.02**
13.00	0.01	1	676.42	0.01
13.50	0.01	1	676.42	0.01
14.00	0.00	0	676.41	0.00
14.50	0.00	0	676.41	0.00
15.00	0.00	0	676.41	0.00
15.50	0.00	0	676.40	0.00
16.00	0.00	0	676.40	0.00
16.50	0.00	0	676.40	0.00
17.00	0.00	0	676.40	0.00
17.50	0.00	0	676.40	0.00
18.00	0.00	0	676.40	0.00
18.50	0.00	0	676.40	0.00
19.00	0.00	0	676.40	0.00
19.50	0.00	0	676.40	0.00
20.00	0.00	0	676.40	0.00

Stage-Discharge for Reach 3R: S. 8" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
676.38	0.00	0.00
676.39	0.37	0.00
676.40	0.60	0.00
676.41	0.78	0.00
676.42	0.94	0.01
676.43	1.08	0.01
676.44	1.21	0.02
676.45	1.34	0.03
676.46	1.46	0.03
676.47	1.57	0.04
676.48	1.67	0.05
676.49	1.77	0.07
676.50	1.87	0.08
676.51	1.96	0.09
676.52	2.05	0.11
676.53	2.13	0.13
676.54	2.22	0.14
676.55	2.29	0.16
676.56	2.37	0.18
676.57	2.44	0.20
676.58	2.51	0.22
676.59	2.58	0.24
676.60	2.65	0.27
676.61	2.71	0.29
676.62	2.77	0.31
676.63	2.83	0.34
676.64	2.88	0.36
676.65	2.94	0.39
676.66	2.99	0.42
676.67	3.04	0.44
676.68	3.09	0.47
676.69	3.14	0.50
676.70	3.18	0.53
676.71	3.22	0.56
676.72	3.26	0.58
676.73	3.30	0.61
676.74	3.34	0.64
676.75	3.38	0.67
676.76	3.41	0.70
676.77	3.44	0.73
676.78	3.47	0.76
676.79	3.50	0.79
676.80	3.53	0.82
676.81	3.55	0.85
676.82	3.57	0.87
676.83	3.59	0.90
676.84	3.61	0.93
676.85	3.63	0.95
676.86	3.64	0.98
676.87	3.66	1.01
676.88	3.67	1.03
676.89	3.68	1.05
676.90	3.68	1.08
676.91	3.69	1.10
676.92	**3.69**	1.12
676.93	3.69	1.14
676.94	3.69	1.15
676.95	3.68	1.17
676.96	3.67	1.18
676.97	3.66	1.19
676.98	3.64	1.20
676.99	3.62	1.21
677.00	3.59	**1.21**
677.01	3.56	1.21
677.02	3.51	1.21
677.03	3.46	1.20
677.04	3.38	1.18
677.05	3.17	1.11

Stage-Area-Storage for Reach 3R: S. 8" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
676.38	0.0	0
676.39	0.0	0
676.40	0.0	0
676.41	0.0	0
676.42	0.0	1
676.43	0.0	1
676.44	0.0	1
676.45	0.0	2
676.46	0.0	2
676.47	0.0	2
676.48	0.0	3
676.49	0.0	3
676.50	0.0	4
676.51	0.0	4
676.52	0.1	5
676.53	0.1	5
676.54	0.1	6
676.55	0.1	6
676.56	0.1	7
676.57	0.1	7
676.58	0.1	8
676.59	0.1	8
676.60	0.1	9
676.61	0.1	9
676.62	0.1	10
676.63	0.1	10
676.64	0.1	11
676.65	0.1	12
676.66	0.1	12
676.67	0.1	13
676.68	0.2	13
676.69	0.2	14
676.70	0.2	14
676.71	0.2	15
676.72	0.2	16
676.73	0.2	16
676.74	0.2	17
676.75	0.2	17
676.76	0.2	18
676.77	0.2	18
676.78	0.2	19
676.79	0.2	20
676.80	0.2	20
676.81	0.2	21
676.82	0.2	21
676.83	0.3	22
676.84	0.3	22
676.85	0.3	23
676.86	0.3	23
676.87	0.3	24
676.88	0.3	24
676.89	0.3	25
676.90	0.3	25
676.91	0.3	26
676.92	0.3	26
676.93	0.3	27
676.94	0.3	27
676.95	0.3	28
676.96	0.3	28
676.97	0.3	28
676.98	0.3	29
676.99	0.3	29
677.00	0.3	29
677.01	0.3	30
677.02	0.3	30
677.03	0.3	30
677.04	0.3	30
677.05	**0.3**	**30**

Summary for Reach 4R: W. 6" PVC

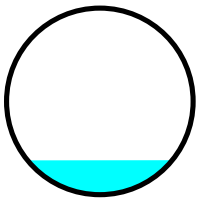
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span
[79] Warning: Submerged Pond 7P Primary device # 1 INLET by 0.07'

Inflow Area = 0.326 ac, 63.36% Impervious, Inflow Depth > 1.46" for 2-Year event
Inflow = 0.20 cfs @ 12.16 hrs, Volume= 0.040 af
Outflow = 0.20 cfs @ 12.17 hrs, Volume= 0.040 af, Atten= 1%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.94 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.86 fps, Avg. Travel Time= 0.3 min

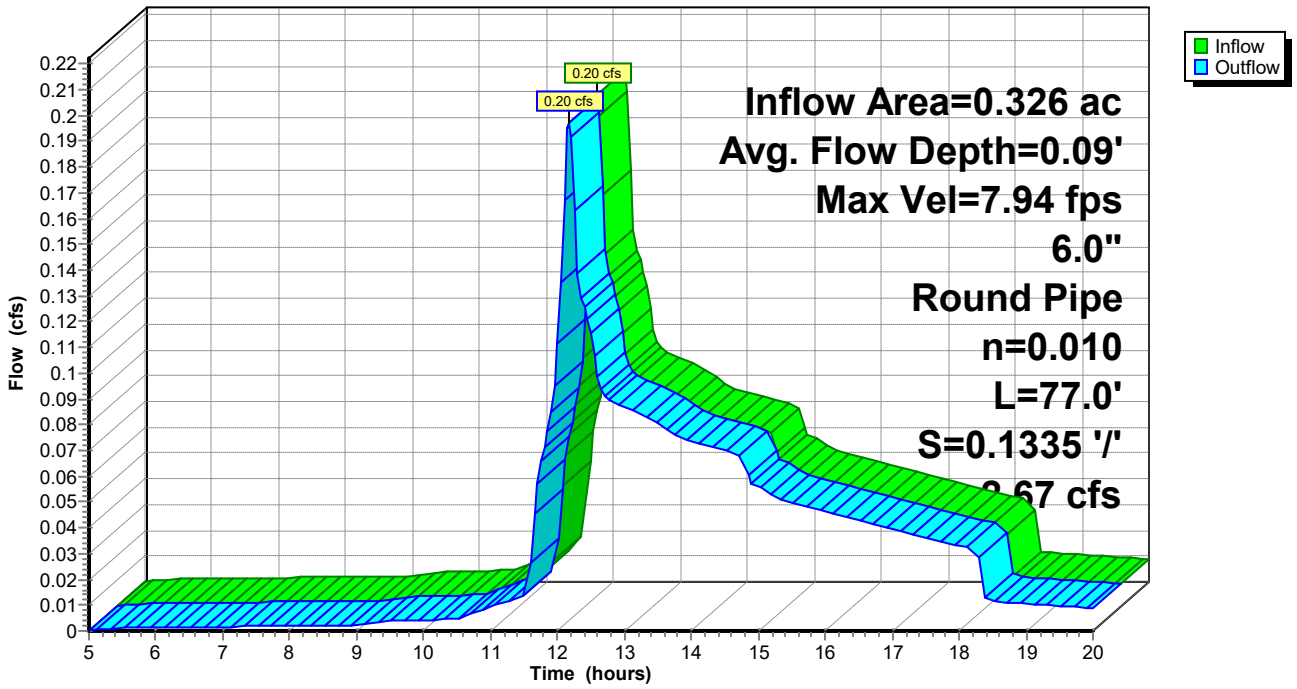
Peak Storage= 2 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.09'
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 2.67 cfs

6.0" Round Pipe
n= 0.010
Length= 77.0' Slope= 0.1335 '/'
Inlet Invert= 668.80', Outlet Invert= 658.52'



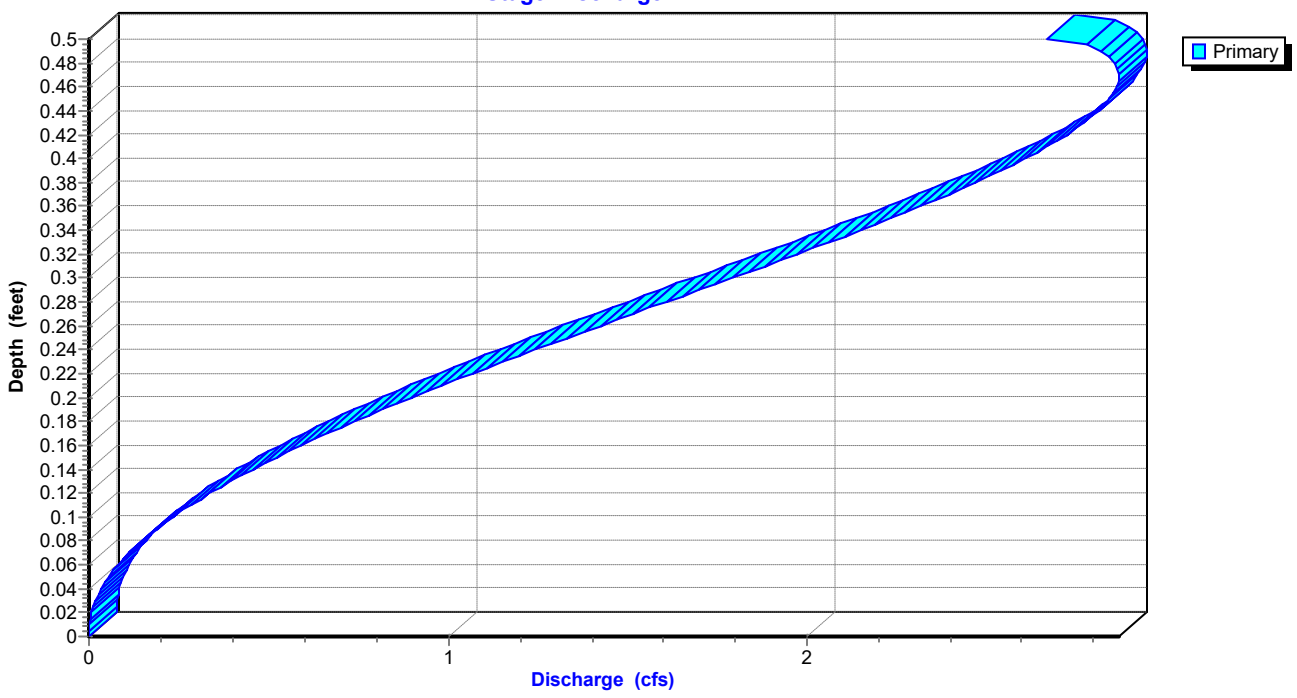
Reach 4R: W. 6" PVC

Hydrograph

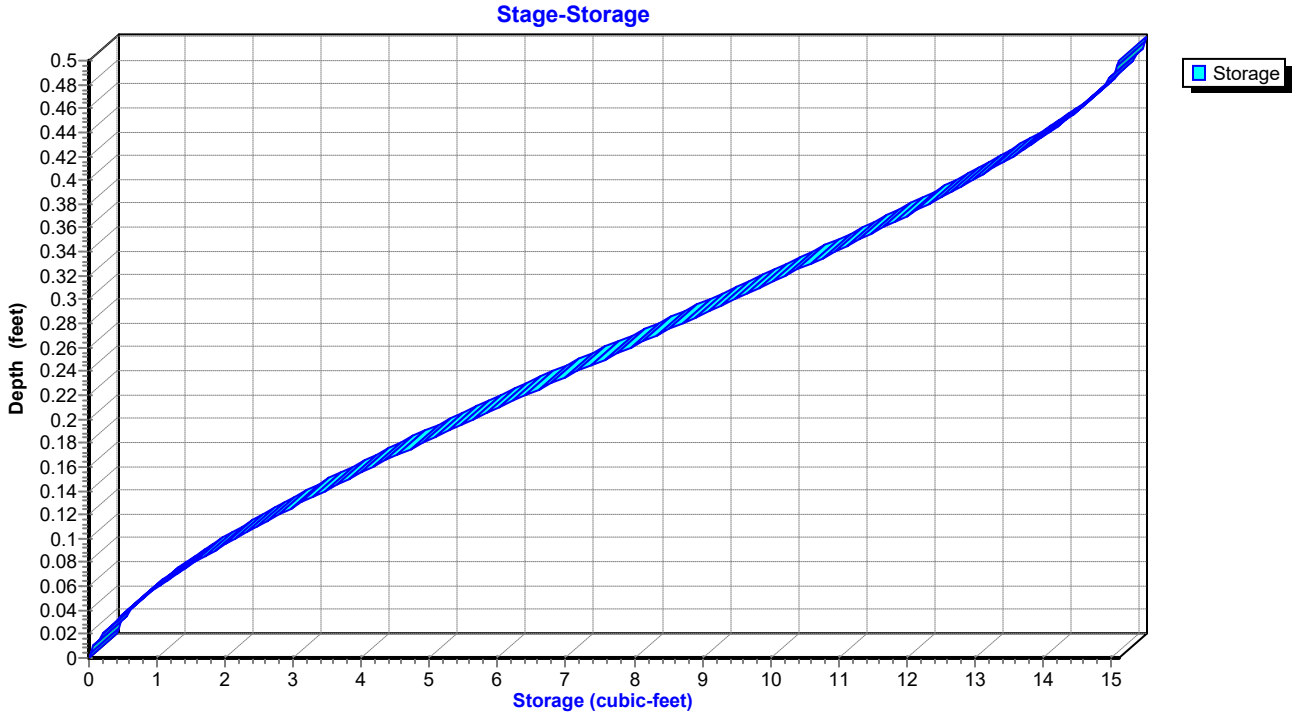


Reach 4R: W. 6" PVC

Stage-Discharge



Reach 4R: W. 6" PVC



Hydrograph for Reach 4R: W. 6" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	668.80	0.00
5.50	0.00	0	668.81	0.00
6.00	0.00	0	668.81	0.00
6.50	0.00	0	668.81	0.00
7.00	0.00	0	668.81	0.00
7.50	0.00	0	668.81	0.00
8.00	0.00	0	668.81	0.00
8.50	0.00	0	668.81	0.00
9.00	0.00	0	668.81	0.00
9.50	0.00	0	668.81	0.00
10.00	0.00	0	668.81	0.00
10.50	0.00	0	668.82	0.00
11.00	0.01	0	668.82	0.01
11.50	0.01	0	668.83	0.01
12.00	**0.11**	**1**	**668.87**	**0.11**
12.50	**0.11**	**1**	**668.87**	**0.12**
13.00	0.09	1	668.86	0.09
13.50	0.08	1	668.86	0.08
14.00	0.07	1	668.86	0.07
14.50	0.07	1	668.86	0.07
15.00	0.06	1	668.85	0.06
15.50	0.05	1	668.85	0.05
16.00	0.05	1	668.85	0.05
16.50	0.04	1	668.84	0.04
17.00	0.04	1	668.84	0.04
17.50	0.04	1	668.84	0.04
18.00	0.03	1	668.84	0.03
18.50	0.01	0	668.82	0.01
19.00	0.01	0	668.82	0.01
19.50	0.01	0	668.82	0.01
20.00	0.01	0	668.82	0.01

Stage-Discharge for Reach 4R: W. 6" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
668.80	0.00	0.00
668.81	1.91	0.00
668.82	3.01	0.01
668.83	3.93	0.02
668.84	4.72	0.03
668.85	5.45	0.06
668.86	6.11	0.08
668.87	6.72	0.11
668.88	7.30	0.15
668.89	7.84	0.19
668.90	8.35	0.23
668.91	8.83	0.28
668.92	9.29	0.34
668.93	9.73	0.39
668.94	10.14	0.46
668.95	10.54	0.52
668.96	10.91	0.59
668.97	11.27	0.66
668.98	11.61	0.74
668.99	11.94	0.82
669.00	12.25	0.90
669.01	12.54	0.98
669.02	12.82	1.07
669.03	13.09	1.15
669.04	13.34	1.24
669.05	13.57	1.33
669.06	13.80	1.42
669.07	14.01	1.52
669.08	14.20	1.61
669.09	14.39	1.70
669.10	14.56	1.79
669.11	14.71	1.88
669.12	14.86	1.97
669.13	14.98	2.06
669.14	15.10	2.15
669.15	15.20	2.23
669.16	15.29	2.31
669.17	15.36	2.39
669.18	15.41	2.47
669.19	15.45	2.54
669.20	15.47	2.61
669.21	**15.47**	2.67
669.22	15.46	2.72
669.23	15.42	2.77
669.24	15.35	2.81
669.25	15.26	2.84
669.26	15.14	2.86
669.27	14.97	**2.87**
669.28	14.74	2.86
669.29	14.41	2.82
669.30	13.57	2.67

Stage-Area-Storage for Reach 4R: W. 6" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
668.80	0.0	0
668.81	0.0	0
668.82	0.0	0
668.83	0.0	0
668.84	0.0	1
668.85	0.0	1
668.86	0.0	1
668.87	0.0	1
668.88	0.0	2
668.89	0.0	2
668.90	0.0	2
668.91	0.0	2
668.92	0.0	3
668.93	0.0	3
668.94	0.0	3
668.95	0.0	4
668.96	0.1	4
668.97	0.1	5
668.98	0.1	5
668.99	0.1	5
669.00	0.1	6
669.01	0.1	6
669.02	0.1	6
669.03	0.1	7
669.04	0.1	7
669.05	0.1	8
669.06	0.1	8
669.07	0.1	8
669.08	0.1	9
669.09	0.1	9
669.10	0.1	9
669.11	0.1	10
669.12	0.1	10
669.13	0.1	11
669.14	0.1	11
669.15	0.1	11
669.16	0.2	12
669.17	0.2	12
669.18	0.2	12
669.19	0.2	13
669.20	0.2	13
669.21	0.2	13
669.22	0.2	14
669.23	0.2	14
669.24	0.2	14
669.25	0.2	14
669.26	0.2	15
669.27	0.2	15
669.28	0.2	15
669.29	0.2	15
669.30	**0.2**	**15**

Summary for Pond 3P: E biofilter LINED

[82] Warning: Early inflow requires earlier time span
[42] Hint: Gap in defined storage above volume #4 at 681.34'
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=7)

Inflow Area = 0.043 ac, 57.33% Impervious, Inflow Depth > 1.63" for 2-Year event
Inflow = 0.09 cfs @ 12.15 hrs, Volume= 0.006 af
Outflow = 0.03 cfs @ 12.38 hrs, Volume= 0.005 af, Atten= 69%, Lag= 13.8 min
Primary = 0.03 cfs @ 12.38 hrs, Volume= 0.005 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 680.51' @ 12.38 hrs Surf.Area= 490 sf Storage= 121 cf

Plug-Flow detention time= 132.7 min calculated for 0.005 af (79% of inflow)
Center-of-Mass det. time= 78.8 min (827.9 - 749.1)

Volume	Invert	Avail.Storage	Storage Description
#1	678.00'	54 cf	**10.50'W x 15.50'L x 1.00'H sand invert** 163 cf Overall x 33.0% Voids
#2	679.00'	66 cf	**10.50'W x 15.50'L x 1.50'H media** 244 cf Overall x 27.0% Voids
#3	680.50'	128 cf	**10.50'W x 15.50'L x 0.60'H top media Z=3.0**
#4	681.10'	195 cf	**39.50'W x 19.50'L x 0.24'H NDS drain Z=3.0**
#5	681.43'	8 cf	**40.00'W x 20.00'L x 0.01'H weir overflow Z=3.0**
		451 cf	Total Available Storage

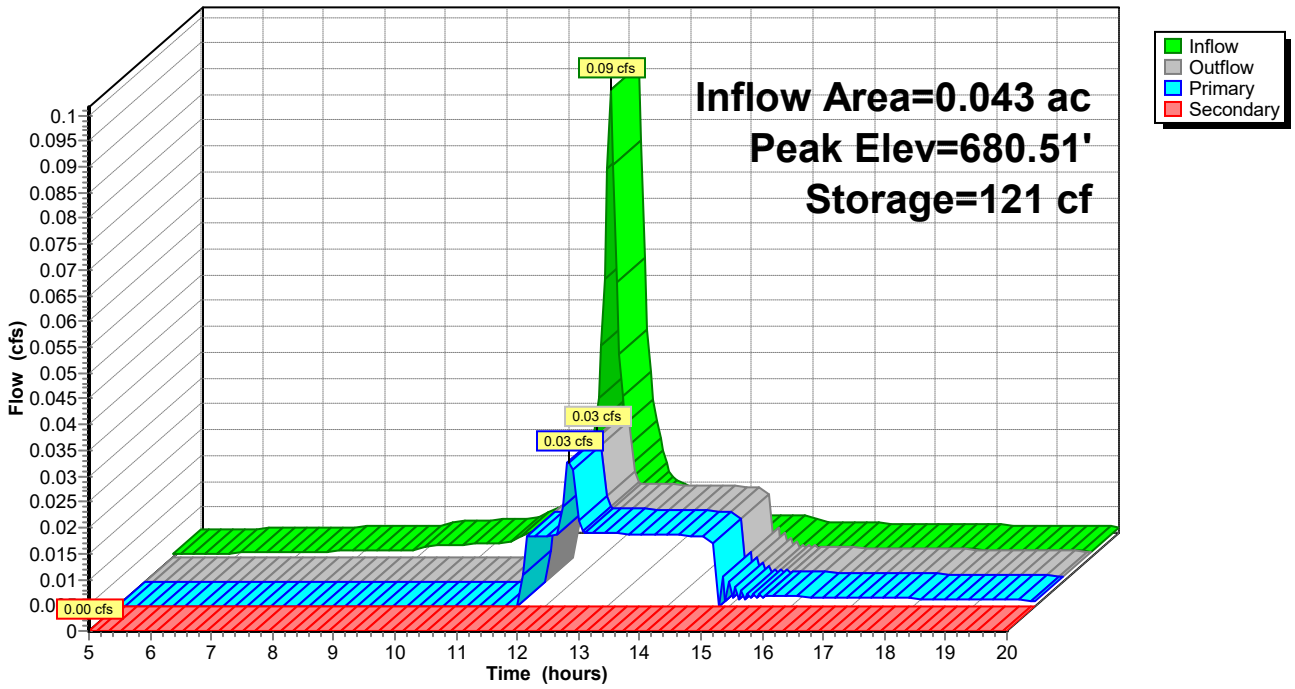
Device	Routing	Invert	Outlet Devices
#1	Secondary	681.34'	**6.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	681.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	678.00'	**3.600 in/hr underdrain over Horizontal area above 678.00'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 163 sf Phase-In= 0.50'

Primary OutFlow Max=0.03 cfs @ 12.38 hrs HW=680.51' (Free Discharge)
└**2=NDS drain** (Controls 0.00 cfs)
└**3=underdrain** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=678.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

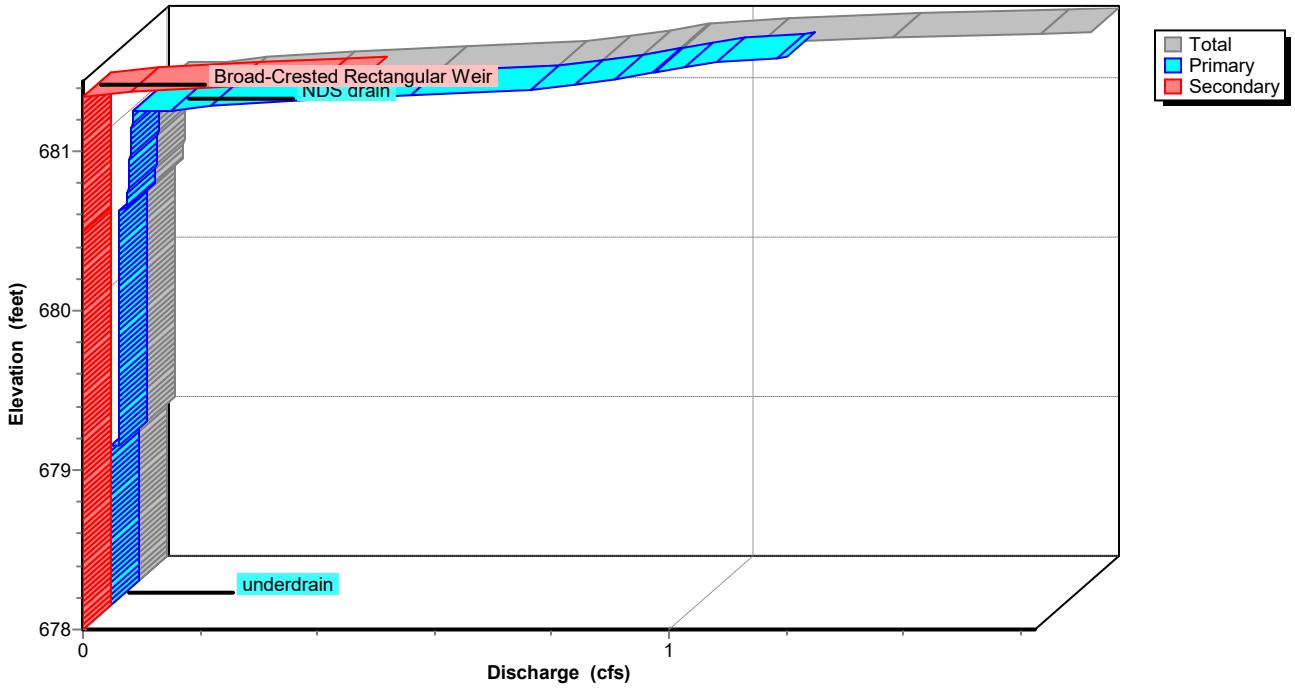
Pond 3P: E biofilter LINED

Hydrograph

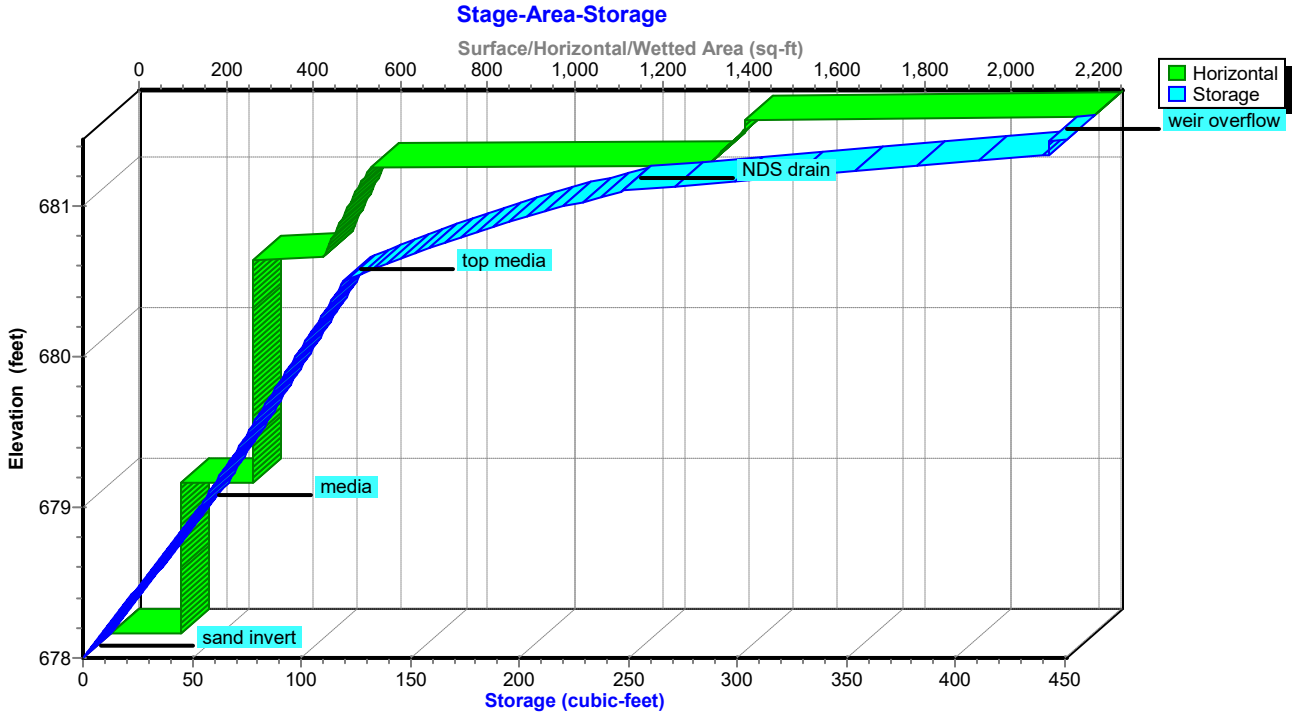


Pond 3P: E biofilter LINED

Stage-Discharge



Pond 3P: E biofilter LINED



Hydrograph for Pond 3P: E biofilter LINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.00	0	678.00	0.00	0.00	**0.00**
5.50	0.00	1	678.02	0.00	0.00	0.00
6.00	0.00	3	678.05	0.00	0.00	0.00
6.50	0.00	4	678.08	0.00	0.00	0.00
7.00	0.00	6	678.11	0.00	0.00	0.00
7.50	0.00	8	678.15	0.00	0.00	0.00
8.00	0.00	10	678.19	0.00	0.00	0.00
8.50	0.00	13	678.24	0.00	0.00	0.00
9.00	0.00	15	678.28	0.00	0.00	0.00
9.50	0.00	19	678.35	0.00	0.00	0.00
10.00	0.00	24	678.44	0.00	0.00	0.00
10.50	0.00	28	678.53	0.00	0.00	0.00
11.00	0.01	36	678.67	0.00	0.00	0.00
11.50	0.01	49	678.91	0.00	0.00	0.00
12.00	**0.04**	**64**	**679.24**	**0.01**	**0.01**	0.00
12.50	**0.02**	**119**	**680.49**	**0.02**	**0.02**	0.00
13.00	0.01	113	680.35	0.01	0.01	0.00
13.50	0.01	101	680.07	0.01	0.01	0.00
14.00	0.00	83	679.66	0.01	0.01	0.00
14.50	0.00	64	679.24	0.01	0.01	0.00
15.00	0.00	54	679.00	0.00	0.00	0.00
15.50	0.00	54	679.00	0.00	0.00	0.00
16.00	0.00	54	679.00	0.00	0.00	0.00
16.50	0.00	54	679.00	0.00	0.00	0.00
17.00	0.00	54	679.00	0.00	0.00	0.00
17.50	0.00	54	679.00	0.00	0.00	0.00
18.00	0.00	54	679.00	0.00	0.00	0.00
18.50	0.00	54	679.00	0.00	0.00	0.00
19.00	0.00	54	679.00	0.00	0.00	0.00
19.50	0.00	54	679.00	0.00	0.00	0.00
20.00	0.00	54	679.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: E biofilter LINED

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
678.00	0.00	0.00	0.00
678.05	0.00	0.00	0.00
678.10	0.00	0.00	0.00
678.15	0.00	0.00	0.00
678.20	0.00	0.00	0.00
678.25	0.00	0.00	0.00
678.30	0.00	0.00	0.00
678.35	0.00	0.00	0.00
678.40	0.00	0.00	0.00
678.45	0.00	0.00	0.00
678.50	0.00	0.00	0.00
678.55	0.00	0.00	0.00
678.60	0.00	0.00	0.00
678.65	0.00	0.00	0.00
678.70	0.00	0.00	0.00
678.75	0.00	0.00	0.00
678.80	0.00	0.00	0.00
678.85	0.00	0.00	0.00
678.90	0.00	0.00	0.00
678.95	0.00	0.00	0.00
679.00	0.01	0.01	0.00
679.05	0.01	0.01	0.00
679.10	0.01	0.01	0.00
679.15	0.01	0.01	0.00
679.20	0.01	0.01	0.00
679.25	0.01	0.01	0.00
679.30	0.01	0.01	0.00
679.35	0.01	0.01	0.00
679.40	0.01	0.01	0.00
679.45	0.01	0.01	0.00
679.50	0.01	0.01	0.00
679.55	0.01	0.01	0.00
679.60	0.01	0.01	0.00
679.65	0.01	0.01	0.00
679.70	0.01	0.01	0.00
679.75	0.01	0.01	0.00
679.80	0.01	0.01	0.00
679.85	0.01	0.01	0.00
679.90	0.01	0.01	0.00
679.95	0.01	0.01	0.00
680.00	0.01	0.01	0.00
680.05	0.01	0.01	0.00
680.10	0.01	0.01	0.00
680.15	0.01	0.01	0.00
680.20	0.01	0.01	0.00
680.25	0.01	0.01	0.00
680.30	0.01	0.01	0.00
680.35	0.01	0.01	0.00
680.40	0.01	0.01	0.00
680.45	0.01	0.01	0.00
680.50	0.03	0.03	0.00
680.55	0.03	0.03	0.00
680.60	0.03	0.03	0.00
680.65	0.03	0.03	0.00
680.70	0.03	0.03	0.00
680.75	0.03	0.03	0.00
680.80	0.03	0.03	0.00
680.85	0.03	0.03	0.00
680.90	0.03	0.03	0.00
680.95	0.03	0.03	0.00
681.00	0.04	0.04	0.00
681.05	0.04	0.04	0.00
681.10	0.10	0.10	0.00
681.15	0.25	0.25	0.00
681.20	0.52	0.52	0.00
681.25	0.75	0.75	0.00
681.30	0.86	0.86	0.00
681.35	0.96	0.95	0.01
681.40	**1.24**	**1.03**	**0.22**

Stage-Area-Storage for Pond 3P: E biofilter LINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
678.00	163	0
678.05	163	3
678.10	163	5
678.15	163	8
678.20	163	11
678.25	163	13
678.30	163	16
678.35	163	19
678.40	163	21
678.45	163	24
678.50	163	27
678.55	163	30
678.60	163	32
678.65	163	35
678.70	163	38
678.75	163	40
678.80	163	43
678.85	163	46
678.90	163	48
678.95	163	51
679.00	326	54
679.05	326	56
679.10	326	58
679.15	326	60
679.20	326	62
679.25	326	65
679.30	326	67
679.35	326	69
679.40	326	71
679.45	326	73
679.50	326	76
679.55	326	78
679.60	326	80
679.65	326	82
679.70	326	84
679.75	326	87
679.80	326	89
679.85	326	91
679.90	326	93
679.95	326	95
680.00	326	98
680.05	326	100
680.10	326	102
680.15	326	104
680.20	326	106
680.25	326	109
680.30	326	111
680.35	326	113
680.40	326	115
680.45	326	117
680.50	488	120
680.55	496	128
680.60	504	137
680.65	512	146
680.70	521	155
680.75	530	165
680.80	538	176
680.85	547	187
680.90	556	198
680.95	566	210
681.00	575	222
681.05	585	235
681.10	1,365	248
681.15	1,383	287
681.20	1,401	327
681.25	1,419	368
681.30	1,437	409
681.35	1,452	443
681.40	**1,452**	**443**

Summary for Pond 5P: W biofillter UNLINED

[82] Warning: Early inflow requires earlier time span
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=14)

Inflow Area = 0.218 ac, 64.67% Impervious, Inflow Depth > 1.79" for 2-Year event
Inflow = 0.49 cfs @ 12.15 hrs, Volume= 0.032 af
Outflow = 0.06 cfs @ 12.72 hrs, Volume= 0.026 af, Atten= 88%, Lag= 34.5 min
Discarded = 0.00 cfs @ 12.72 hrs, Volume= 0.000 af
Primary = 0.06 cfs @ 12.72 hrs, Volume= 0.026 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 675.85' @ 12.72 hrs Surf.Area= 1,335 sf Storage= 832 cf

Plug-Flow detention time= 192.4 min calculated for 0.026 af (80% of inflow)
Center-of-Mass det. time= 141.5 min (889.5 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1	671.75'	107 cf	**8.30'W x 39.20'L x 1.00'H sand invert** 325 cf Overall x 33.0% Voids
#2	672.75'	176 cf	**8.30'W x 39.20'L x 2.00'H media** 651 cf Overall x 27.0% Voids
#3	674.75'	728 cf	**8.30'W x 39.20'L x 1.35'H top media Z=3.0**
#4	676.10'	43 cf	**18.00'W x 47.00'L x 0.05'H NDS drain Z=3.0**
#5	676.15'	8 cf	**18.00'W x 47.00'L x 0.01'H weir overflow Z=3.0**
		1,063 cf	Total Available Storage

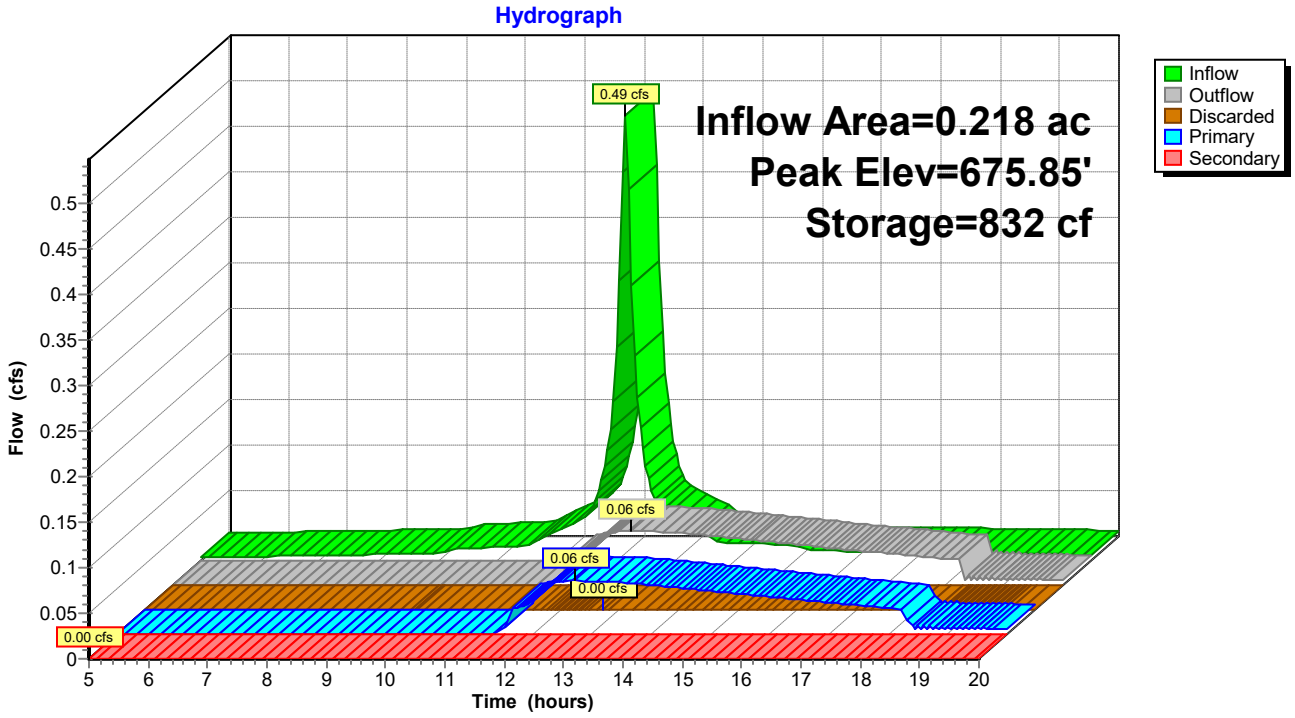
Device	Routing	Invert	Outlet Devices
#1	Secondary	676.15'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Primary	676.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	672.75'	**3.600 in/hr underdrain over Horizontal area above 672.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 651 sf Phase-In= 0.50'
#4	Discarded	671.75'	**0.030 in/hr Exfiltration over Horizontal area above 671.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 325 sf Phase-In= 0.50'

Discarded OutFlow Max=0.00 cfs @ 12.72 hrs HW=675.85' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

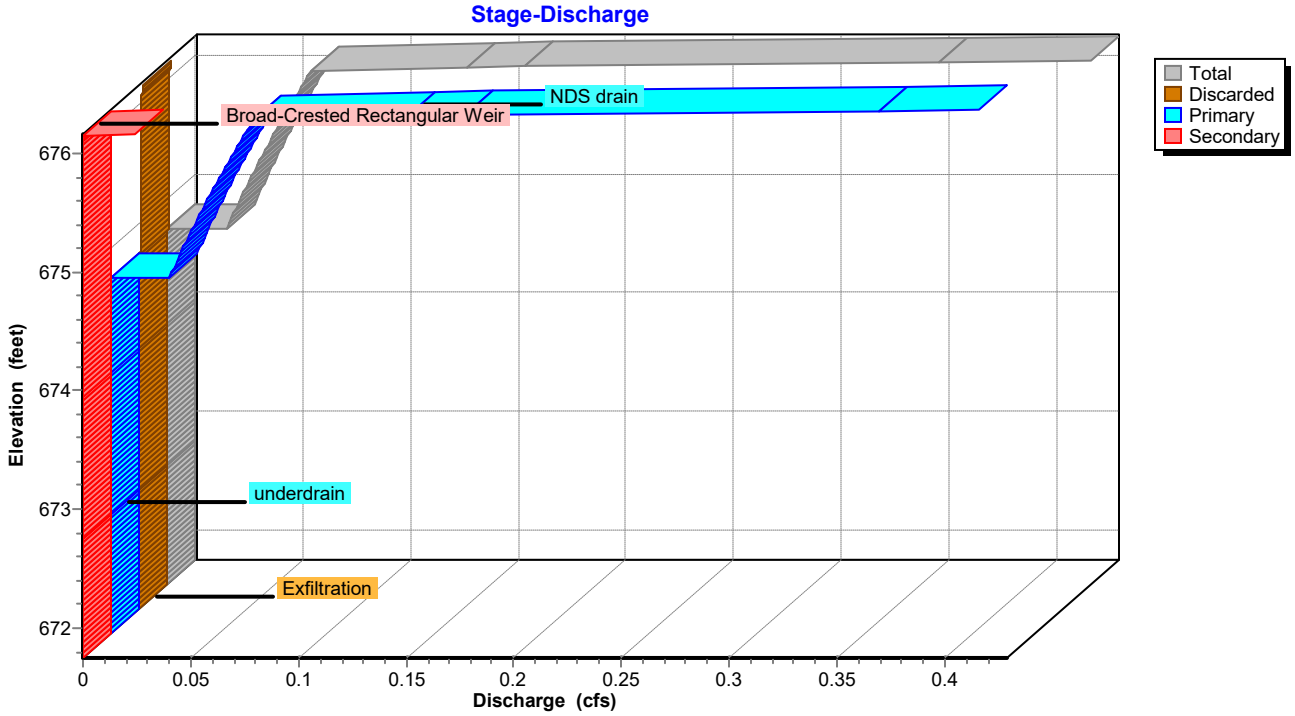
Primary OutFlow Max=0.06 cfs @ 12.72 hrs HW=675.85' (Free Discharge)
├**2=NDS drain** (Controls 0.00 cfs)
└**3=underdrain** (Controls 0.06 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=671.75' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

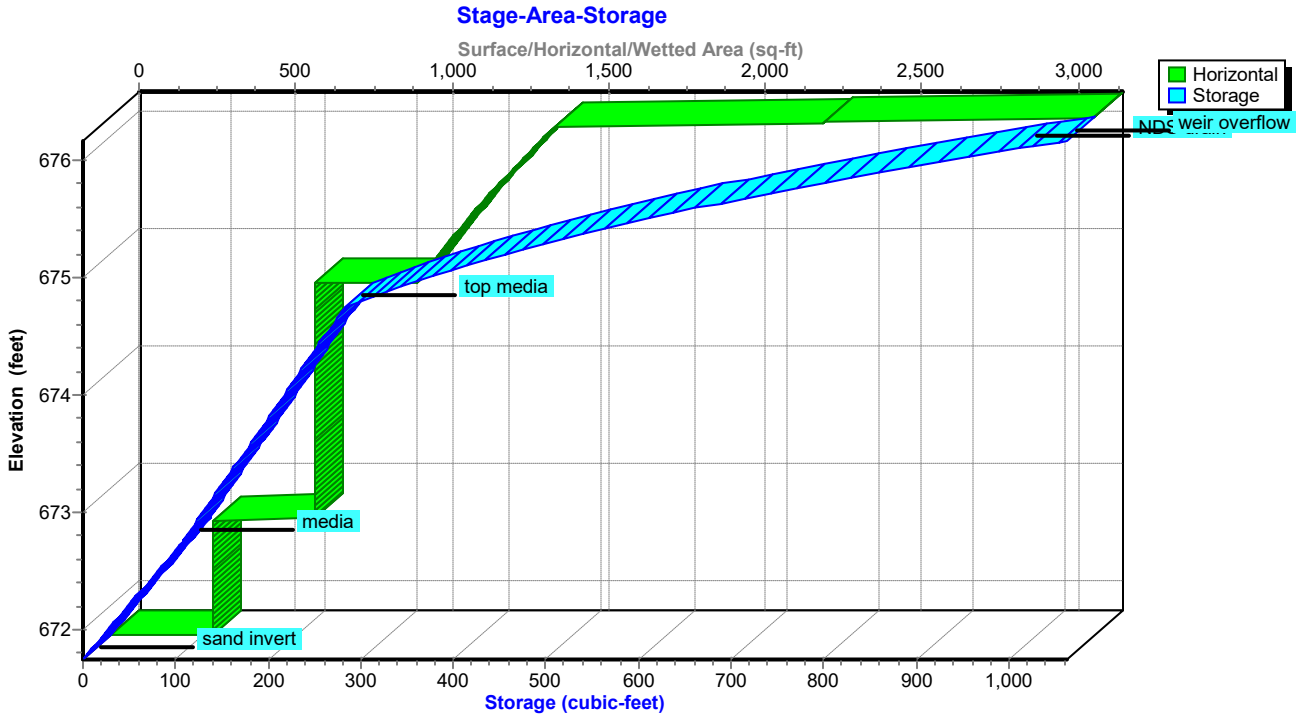
Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Hydrograph for Pond 5P: W biofillter UNLINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.00	0	671.75	0.00	0.00	0.00	**0.00**
5.50	0.00	7	671.81	0.00	0.00	0.00	0.00
6.00	0.00	14	671.88	0.00	0.00	0.00	0.00
6.50	0.01	23	671.97	0.00	0.00	0.00	0.00
7.00	0.01	33	672.06	0.00	0.00	0.00	0.00
7.50	0.01	44	672.16	0.00	0.00	0.00	0.00
8.00	0.01	56	672.27	0.00	0.00	0.00	0.00
8.50	0.01	69	672.39	0.00	0.00	0.00	0.00
9.00	0.01	83	672.52	0.00	0.00	0.00	0.00
9.50	0.01	104	672.72	0.00	0.00	0.00	0.00
10.00	0.01	129	673.00	0.00	0.00	0.00	0.00
10.50	0.02	156	673.31	0.00	0.00	0.00	0.00
11.00	0.03	200	673.81	0.00	0.00	0.00	0.00
11.50	0.05	272	674.63	0.00	0.00	0.00	0.00
12.00	**0.23**	409	675.09	0.04	0.00	0.04	0.00
12.50	**0.10**	**818**	**675.83**	**0.06**	**0.00**	**0.06**	0.00
13.00	0.05	**826**	**675.85**	**0.06**	**0.00**	**0.06**	0.00
13.50	0.03	793	675.80	0.06	0.00	0.06	0.00
14.00	0.02	732	675.70	0.05	0.00	0.05	0.00
14.50	0.02	671	675.60	0.05	0.00	0.05	0.00
15.00	0.02	613	675.50	0.05	0.00	0.05	0.00
15.50	0.01	552	675.39	0.04	0.00	0.04	0.00
16.00	0.01	493	675.27	0.04	0.00	0.04	0.00
16.50	0.01	439	675.16	0.04	0.00	0.04	0.00
17.00	0.01	390	675.04	0.04	0.00	0.03	0.00
17.50	0.01	346	674.93	0.03	0.00	0.03	0.00
18.00	0.01	306	674.82	0.03	0.00	0.03	0.00
18.50	0.01	283	674.75	0.01	0.00	0.01	0.00
19.00	0.01	283	674.75	0.01	0.00	0.01	0.00
19.50	0.01	283	674.75	0.01	0.00	0.01	0.00
20.00	0.01	283	674.75	0.01	0.00	0.01	0.00

Stage-Discharge for Pond 5P: W biofillter UNLINED

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
671.75	0.00	0.00	0.00	0.00
671.85	0.00	0.00	0.00	0.00
671.95	0.00	0.00	0.00	0.00
672.05	0.00	0.00	0.00	0.00
672.15	0.00	0.00	0.00	0.00
672.25	0.00	0.00	0.00	0.00
672.35	0.00	0.00	0.00	0.00
672.45	0.00	0.00	0.00	0.00
672.55	0.00	0.00	0.00	0.00
672.65	0.00	0.00	0.00	0.00
672.75	0.00	0.00	0.00	0.00
672.85	0.00	0.00	0.00	0.00
672.95	0.00	0.00	0.00	0.00
673.05	0.00	0.00	0.00	0.00
673.15	0.00	0.00	0.00	0.00
673.25	0.00	0.00	0.00	0.00
673.35	0.00	0.00	0.00	0.00
673.45	0.00	0.00	0.00	0.00
673.55	0.00	0.00	0.00	0.00
673.65	0.00	0.00	0.00	0.00
673.75	0.00	0.00	0.00	0.00
673.85	0.00	0.00	0.00	0.00
673.95	0.00	0.00	0.00	0.00
674.05	0.00	0.00	0.00	0.00
674.15	0.00	0.00	0.00	0.00
674.25	0.00	0.00	0.00	0.00
674.35	0.00	0.00	0.00	0.00
674.45	0.00	0.00	0.00	0.00
674.55	0.00	0.00	0.00	0.00
674.65	0.00	0.00	0.00	0.00
674.75	0.03	0.00	0.03	0.00
674.85	0.03	0.00	0.03	0.00
674.95	0.03	0.00	0.03	0.00
675.05	0.04	0.00	0.03	0.00
675.15	0.04	0.00	0.04	0.00
675.25	0.04	0.00	0.04	0.00
675.35	0.04	0.00	0.04	0.00
675.45	0.05	0.00	0.05	0.00
675.55	0.05	0.00	0.05	0.00
675.65	0.05	0.00	0.05	0.00
675.75	0.06	0.00	0.06	0.00
675.85	0.06	0.00	0.06	0.00
675.95	0.06	0.00	0.06	0.00
676.05	0.07	0.00	0.07	0.00
676.15	**0.36**	**0.00**	**0.36**	**0.00**

Stage-Area-Storage for Pond 5P: W biofillter UNLINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
671.75	325	0
671.80	325	5
671.85	325	11
671.90	325	16
671.95	325	21
672.00	325	27
672.05	325	32
672.10	325	38
672.15	325	43
672.20	325	48
672.25	325	54
672.30	325	59
672.35	325	64
672.40	325	70
672.45	325	75
672.50	325	81
672.55	325	86
672.60	325	91
672.65	325	97
672.70	325	102
672.75	651	107
672.80	651	112
672.85	651	116
672.90	651	121
672.95	651	125
673.00	651	129
673.05	651	134
673.10	651	138
673.15	651	143
673.20	651	147
673.25	651	151
673.30	651	156
673.35	651	160
673.40	651	164
673.45	651	169
673.50	651	173
673.55	651	178
673.60	651	182
673.65	651	186
673.70	651	191
673.75	651	195
673.80	651	200
673.85	651	204
673.90	651	208
673.95	651	213
674.00	651	217
674.05	651	222
674.10	651	226
674.15	651	230
674.20	651	235
674.25	651	239
674.30	651	244
674.35	651	248
674.40	651	252
674.45	651	257
674.50	651	261
674.55	651	265
674.60	651	270
674.65	651	274
674.70	651	279
674.75	976	283
674.80	990	300
674.85	1,005	317
674.90	1,020	335
674.95	1,035	354
675.00	1,050	373
675.05	1,065	394
675.10	1,080	415
675.15	1,096	437
675.20	1,112	459
675.25	1,128	483
675.30	1,144	507
675.35	1,160	532
675.40	1,177	558
675.45	1,193	585
675.50	1,210	612
675.55	1,227	641
675.60	1,244	670
675.65	1,262	700
675.70	1,279	731
675.75	1,297	763
675.80	1,315	796
675.85	1,333	829
675.90	1,351	864
675.95	1,370	899
676.00	1,389	936
676.05	1,407	973
676.10	2,272	1,012
676.15	**3,138**	**1,054**

Summary for Pond 7P: 48" UG storage

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.326 ac, 63.36% Impervious, Inflow Depth > 1.46" for 2-Year event
Inflow = 0.21 cfs @ 12.13 hrs, Volume= 0.040 af
Outflow = 0.20 cfs @ 12.16 hrs, Volume= 0.040 af, Atten= 6%, Lag= 1.9 min
Primary = 0.20 cfs @ 12.16 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 669.22' @ 12.16 hrs Surf.Area= 110 sf Storage= 25 cf

Plug-Flow detention time= 1.7 min calculated for 0.040 af (100% of inflow)
Center-of-Mass det. time= 1.6 min (850.3 - 848.7)

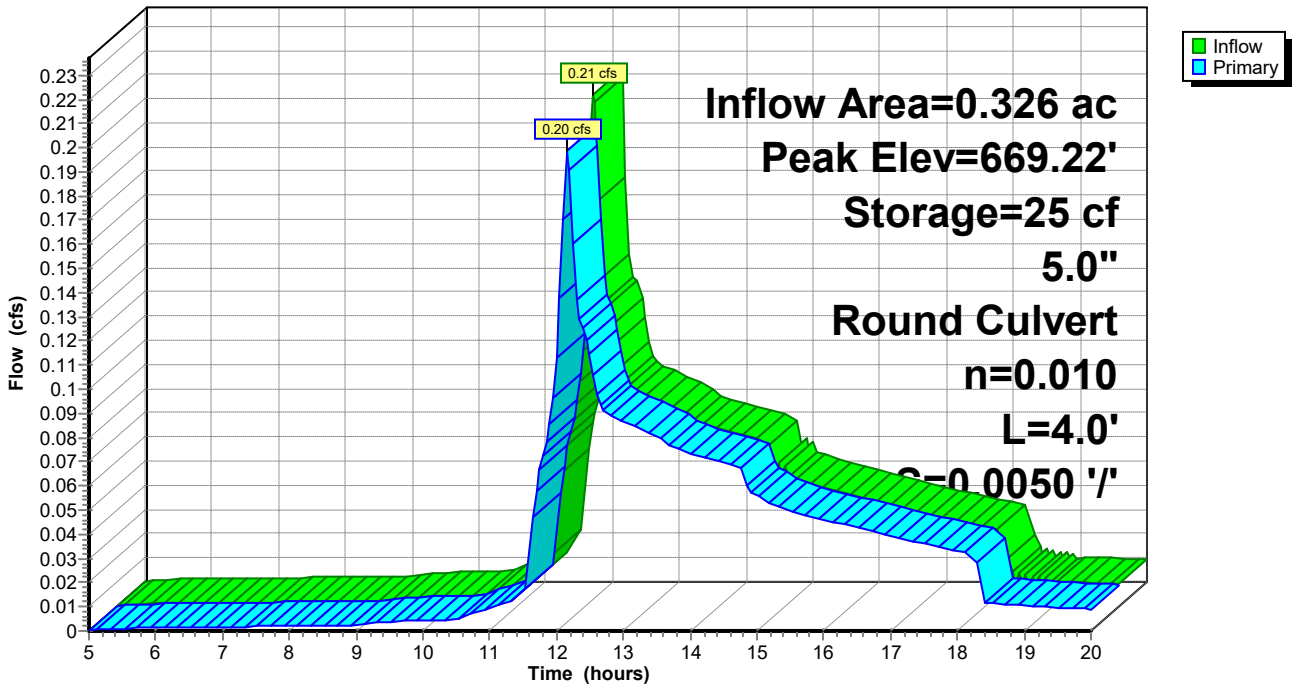
Volume	Invert	Avail.Storage	Storage Description
#1	668.82'	628 cf	**48.0" Round Pipe Storage** L= 50.0' S= 0.0026 '/'

Device	Routing	Invert	Outlet Devices
#1	Primary	668.82'	**5.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 668.82' / 668.80' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.14 sf

Primary OutFlow Max=0.20 cfs @ 12.16 hrs HW=669.21' (Free Discharge)
1=Culvert (Barrel Controls 0.20 cfs @ 1.90 fps)

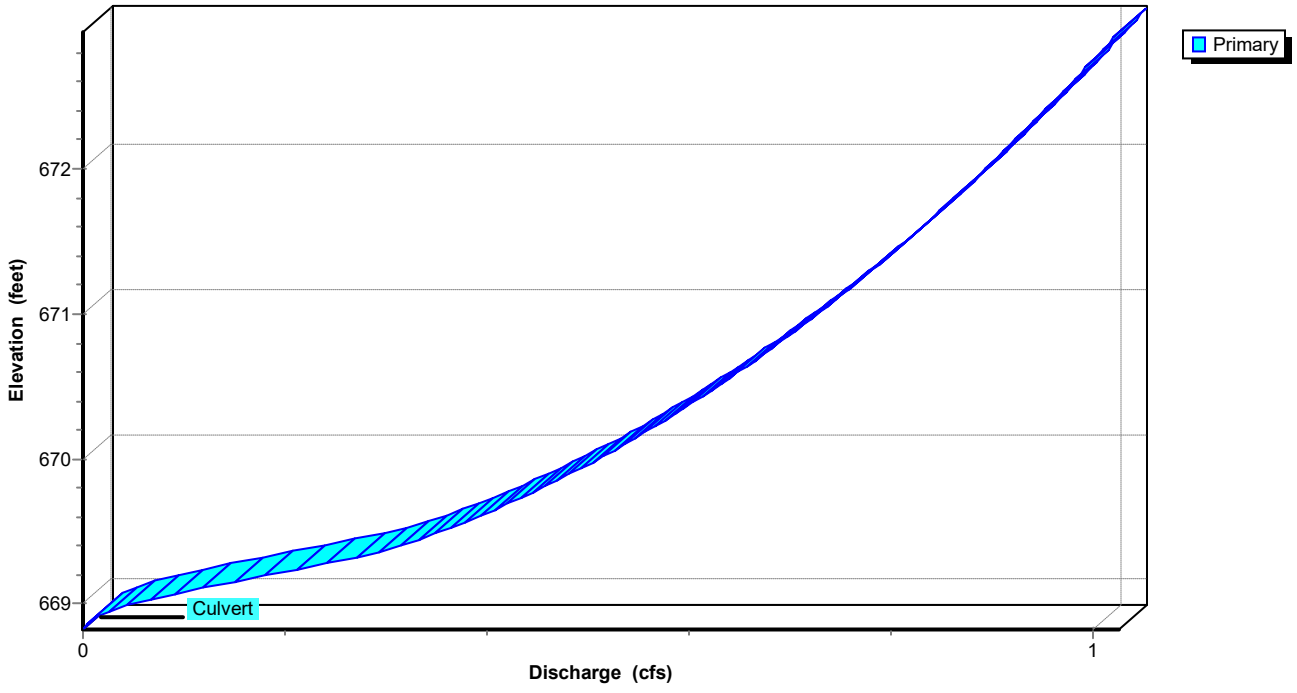
Pond 7P: 48" UG storage

Hydrograph

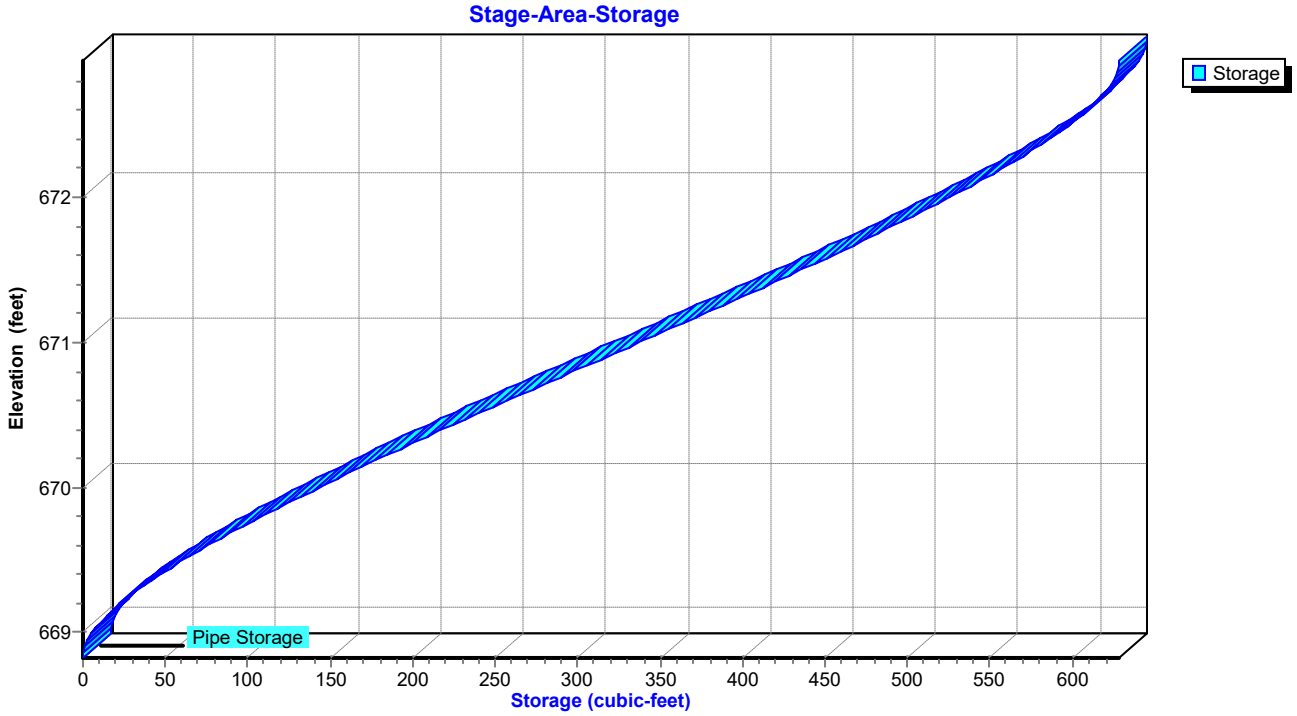


Pond 7P: 48" UG storage

Stage-Discharge



Pond 7P: 48" UG storage



Hydrograph for Pond 7P: 48" UG storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
5.00	0.00	0	668.82	0.00
5.50	0.00	0	668.83	0.00
6.00	0.00	0	668.84	0.00
6.50	0.00	0	668.84	0.00
7.00	0.00	0	668.84	0.00
7.50	0.00	0	668.84	0.00
8.00	0.00	0	668.85	0.00
8.50	0.00	0	668.85	0.00
9.00	0.00	0	668.85	0.00
9.50	0.00	0	668.86	0.00
10.00	0.00	0	668.87	0.00
10.50	0.00	0	668.87	0.00
11.00	0.01	1	668.89	0.01
11.50	0.01	1	668.91	0.01
12.00	**0.13**	**13**	**669.10**	**0.11**
12.50	**0.11**	**13**	**669.10**	**0.11**
13.00	0.09	10	669.06	0.09
13.50	0.08	9	669.05	0.08
14.00	0.07	8	669.04	0.07
14.50	0.07	8	669.03	0.07
15.00	0.06	6	669.01	0.06
15.50	0.05	5	669.00	0.05
16.00	0.05	5	668.99	0.05
16.50	0.04	4	668.98	0.04
17.00	0.04	4	668.97	0.04
17.50	0.04	3	668.97	0.04
18.00	0.03	3	668.96	0.03
18.50	0.01	1	668.90	0.01
19.00	0.01	1	668.89	0.01
19.50	0.01	1	668.89	0.01
20.00	0.01	1	668.89	0.01

Stage-Discharge for Pond 7P: 48" UG storage

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
668.82	0.00	671.37	0.79
668.87	0.00	671.42	0.80
668.92	0.02	671.47	0.81
668.97	0.04	671.52	0.82
669.02	0.06	671.57	0.83
669.07	0.09	671.62	0.83
669.12	0.13	671.67	0.84
669.17	0.16	671.72	0.85
669.22	0.20	671.77	0.86
669.27	0.24	671.82	0.87
669.32	0.27	671.87	0.87
669.37	0.30	671.92	0.88
669.42	0.32	671.97	0.89
669.47	0.34	672.02	0.90
669.52	0.36	672.07	0.90
669.57	0.38	672.12	0.91
669.62	0.40	672.17	0.92
669.67	0.42	672.22	0.93
669.72	0.43	672.27	0.93
669.77	0.45	672.32	0.94
669.82	0.46	672.37	0.95
669.87	0.48	672.42	0.95
669.92	0.49	672.47	0.96
669.97	0.50	672.52	0.97
670.02	0.52	672.57	0.98
670.07	0.53	672.62	0.98
670.12	0.54	672.67	0.99
670.17	0.55	672.72	1.00
670.22	0.57	672.77	1.00
670.27	0.58	672.82	1.01
670.32	0.59	672.87	1.02
670.37	0.60	672.92	**1.02**
670.42	0.61		
670.47	0.62		
670.52	0.63		
670.57	0.64		
670.62	0.65		
670.67	0.66		
670.72	0.67		
670.77	0.68		
670.82	0.69		
670.87	0.70		
670.92	0.71		
670.97	0.72		
671.02	0.73		
671.07	0.74		
671.12	0.75		
671.17	0.76		
671.22	0.77		
671.27	0.78		
671.32	0.78		

Stage-Area-Storage for Pond 7P: 48" UG storage

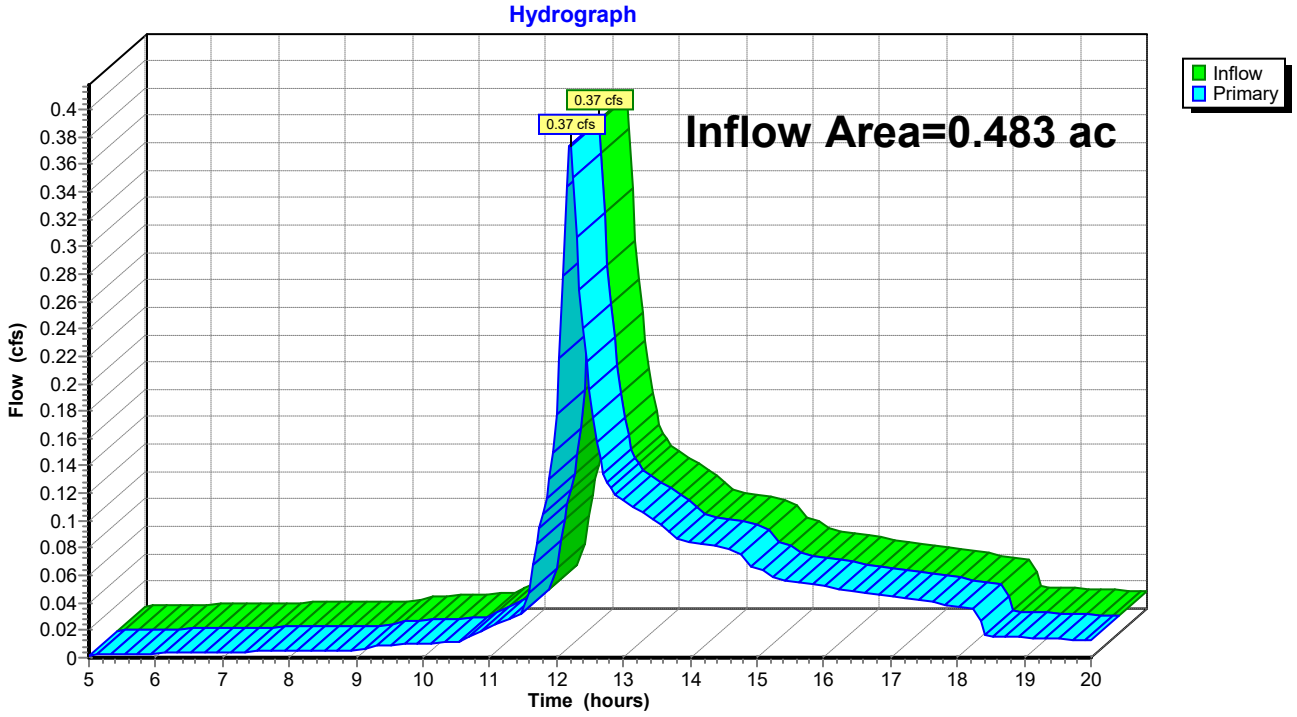
Elevation (feet)	Storage (cubic-feet)
668.82	0
668.87	0
668.92	1
668.97	4
669.02	7
669.07	11
669.12	15
669.17	20
669.22	25
669.27	31
669.32	37
669.37	43
669.42	50
669.47	57
669.52	64
669.57	72
669.62	79
669.67	87
669.72	95
669.77	103
669.82	112
669.87	120
669.92	129
669.97	138
670.02	147
670.07	156
670.12	165
670.17	174
670.22	184
670.27	193
670.32	203
670.37	212
670.42	222
670.47	232
670.52	242
670.57	251
670.62	261
670.67	271
670.72	281
670.77	291
670.82	301
670.87	311
670.92	321
670.97	331
671.02	341
671.07	351
671.12	361
671.17	371
671.22	381
671.27	391
671.32	400
671.37	410
671.42	420
671.47	429
671.52	439
671.57	448
671.62	458
671.67	467
671.72	476
671.77	485
671.82	494
671.87	503
671.92	511
671.97	520
672.02	528
672.07	536
672.12	544
672.17	552
672.22	560
672.27	567
672.32	574
672.37	581
672.42	587
672.47	594
672.52	600
672.57	605
672.62	610
672.67	615
672.72	619
672.77	623
672.82	626
672.87	628
672.92	**628**

Summary for Link 2L: frontage rd

Inflow Area = 0.483 ac, 55.51% Impervious, Inflow Depth > 1.37" for 2-Year event
Inflow = 0.37 cfs @ 12.20 hrs, Volume= 0.055 af
Primary = 0.37 cfs @ 12.20 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: frontage rd



Hydrograph for Link 2L: frontage rd

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	17.75	0.04	0.00	0.04
5.25	0.00	0.00	0.00	18.00	0.04	0.00	0.04
5.50	0.00	0.00	0.00	18.25	0.04	0.00	0.04
5.75	0.00	0.00	0.00	18.50	0.02	0.00	0.02
6.00	0.00	0.00	0.00	18.75	0.02	0.00	0.02
6.25	0.00	0.00	0.00	19.00	0.01	0.00	0.01
6.50	0.00	0.00	0.00	19.25	0.01	0.00	0.01
6.75	0.00	0.00	0.00	19.50	0.01	0.00	0.01
7.00	0.00	0.00	0.00	19.75	0.01	0.00	0.01
7.25	0.00	0.00	0.00	20.00	0.01	0.00	0.01
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.01	0.00	0.01				
8.50	0.01	0.00	0.01				
8.75	0.01	0.00	0.01				
9.00	0.01	0.00	0.01				
9.25	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
9.75	0.01	0.00	0.01				
10.00	0.01	0.00	0.01				
10.25	0.01	0.00	0.01				
10.50	0.01	0.00	0.01				
10.75	0.02	0.00	0.02				
11.00	0.02	0.00	0.02				
11.25	0.03	0.00	0.03				
11.50	0.03	0.00	0.03				
11.75	0.10	0.00	0.10				
12.00	**0.18**	0.00	**0.18**				
12.25	**0.35**	0.00	**0.35**				
12.50	0.20	0.00	0.20				
12.75	0.13	0.00	0.13				
13.00	0.11	0.00	0.11				
13.25	0.11	0.00	0.11				
13.50	0.10	0.00	0.10				
13.75	0.09	0.00	0.09				
14.00	0.08	0.00	0.08				
14.25	0.08	0.00	0.08				
14.50	0.08	0.00	0.08				
14.75	0.08	0.00	0.08				
15.00	0.07	0.00	0.07				
15.25	0.06	0.00	0.06				
15.50	0.06	0.00	0.06				
15.75	0.05	0.00	0.05				
16.00	0.05	0.00	0.05				
16.25	0.05	0.00	0.05				
16.50	0.05	0.00	0.05				
16.75	0.05	0.00	0.05				
17.00	0.04	0.00	0.04				
17.25	0.04	0.00	0.04				
17.50	0.04	0.00	0.04				

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: To E Biofilter Runoff Area=1,875 sf 57.33% Impervious Runoff Depth>2.62"
Flow Length=25' Tc=8.0 min CN=WQ Runoff=0.15 cfs 0.009 af

Subcatchment 3S: to curb inlet Runoff Area=5,020 sf 68.92% Impervious Runoff Depth>2.95"
Flow Length=150' Tc=10.0 min CN=WQ Runoff=0.42 cfs 0.028 af

Subcatchment 4S: to W biofilter Runoff Area=4,490 sf 59.91% Impervious Runoff Depth>2.70"
Flow Length=140' Tc=6.0 min CN=WQ Runoff=0.39 cfs 0.023 af

Subcatchment 5S: to NDS 13-14-15 Runoff Area=1,050 sf 0.00% Impervious Runoff Depth>0.90"
Flow Length=175' Tc=8.0 min CN=WQ Runoff=0.03 cfs 0.002 af

Subcatchment 6S: untreated Runoff Area=6,820 sf 39.15% Impervious Runoff Depth>2.06"
Flow Length=100' Tc=15.0 min CN=WQ Runoff=0.34 cfs 0.027 af

Subcatchment 7S: S 1/2 roof to 8" PVC Runoff Area=1,190 sf 100.00% Impervious Runoff Depth>3.88"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.15 cfs 0.009 af

Subcatchment 8S: NW 1/4 roof Runoff Area=595 sf 100.00% Impervious Runoff Depth>3.88"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.08 cfs 0.004 af

Reach 3R: S. 8" PVC Avg. Flow Depth=0.18' Max Vel=2.35 fps Inflow=0.18 cfs 0.011 af
8.0" Round Pipe n=0.010 L=87.0' S=0.0052 '/' Capacity=1.13 cfs Outflow=0.17 cfs 0.011 af

Reach 4R: W. 6" PVC Avg. Flow Depth=0.13' Max Vel=9.82 fps Inflow=0.41 cfs 0.067 af
6.0" Round Pipe n=0.010 L=77.0' S=0.1335 '/' Capacity=2.67 cfs Outflow=0.41 cfs 0.067 af

Pond 3P: E biofilter LINED Peak Elev=680.81' Storage=178 cf Inflow=0.15 cfs 0.009 af
Primary=0.03 cfs 0.008 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.008 af

Pond 5P: W biofillter UNLINED Peak Elev=676.16' Storage=1,059 cf Inflow=0.79 cfs 0.052 af
Discarded=0.00 cfs 0.001 af Primary=0.38 cfs 0.044 af Secondary=0.01 cfs 0.000 af Outflow=0.40 cfs 0.045 af

Pond 7P: 48" UG storage Peak Elev=669.66' Storage=85 cf Inflow=0.50 cfs 0.067 af
5.0" Round Culvert n=0.010 L=4.0' S=0.0050 '/' Outflow=0.41 cfs 0.067 af

Link 2L: frontage rd Inflow=0.69 cfs 0.094 af
Primary=0.69 cfs 0.094 af

Total Runoff Area = 0.483 ac Runoff Volume = 0.103 af Average Runoff Depth = 2.56"
44.49% Pervious = 0.215 ac 55.51% Impervious = 0.268 ac

Summary for Subcatchment 1S: To E Biofilter

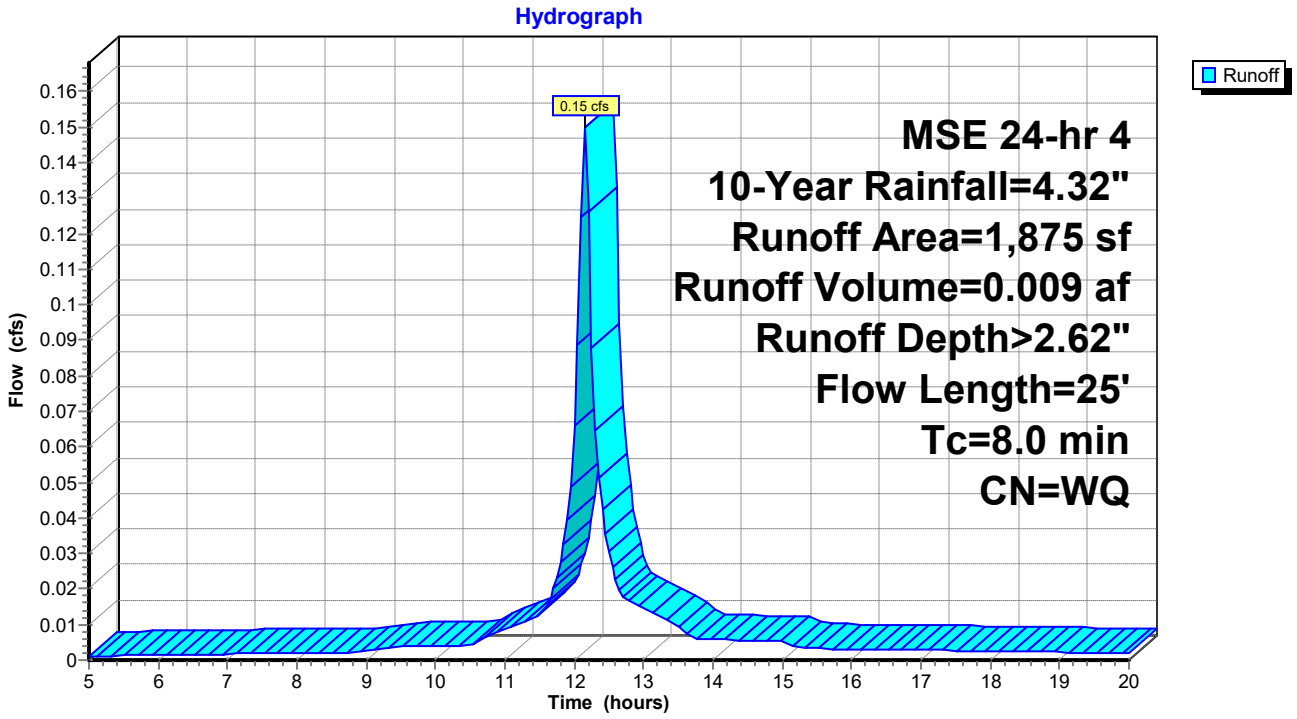
Runoff = 0.15 cfs @ 12.15 hrs, Volume= 0.009 af, Depth> 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	800	61	lawn, HSG B, good
*	645	98	NE 1/4 roof
*	210	100	bio media
*	220	98	retain wall
	1,875		Weighted Average
	800		42.67% Pervious Area
	1,075		57.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	25		0.05		**Direct Entry, lawn above wall to E bio**

Subcatchment 1S: To E Biofilter



Hydrograph for Subcatchment 1S: To E Biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.27	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.30	0.00	0.00
6.75	0.32	0.00	0.00
7.00	0.34	0.00	0.00
7.25	0.36	0.00	0.00
7.50	0.38	0.00	0.00
7.75	0.41	0.00	0.00
8.00	0.43	0.00	0.00
8.25	0.45	0.00	0.00
8.50	0.47	0.00	0.00
8.75	0.50	0.00	0.00
9.00	0.52	0.00	0.00
9.25	0.56	0.01	0.00
9.50	0.60	0.01	0.00
9.75	0.64	0.02	0.00
10.00	0.68	0.02	0.00
10.25	0.73	0.03	0.00
10.50	0.77	0.04	0.00
10.75	0.84	0.06	0.01
11.00	0.93	0.09	0.01
11.25	1.04	0.13	0.01
11.50	1.17	0.18	0.01
11.75	1.42	0.30	0.02
12.00	2.02	0.66	**0.07**
12.25	2.90	1.30	**0.09**
12.50	3.15	1.50	0.03
12.75	3.28	1.60	0.02
13.00	3.39	1.69	0.01
13.25	3.48	1.76	0.01
13.50	3.55	1.82	0.01
13.75	3.59	1.86	0.01
14.00	3.64	1.90	0.01
14.25	3.68	1.93	0.01
14.50	3.72	1.96	0.01
14.75	3.76	2.00	0.01
15.00	3.80	2.03	0.01
15.25	3.82	2.05	0.00
15.50	3.85	2.07	0.00
15.75	3.87	2.09	0.00
16.00	3.89	2.11	0.00
16.25	3.91	2.13	0.00
16.50	3.94	2.15	0.00
16.75	3.96	2.17	0.00
17.00	3.98	2.18	0.00
17.25	4.00	2.20	0.00
17.50	4.02	2.22	0.00
17.75	4.04	2.23	0.00
18.00	4.05	2.25	0.00
18.25	4.07	2.26	0.00
18.50	4.09	2.28	0.00
18.75	4.11	2.29	0.00
19.00	4.12	2.31	0.00
19.25	4.14	2.32	0.00
19.50	4.15	2.33	0.00
19.75	4.17	2.35	0.00
20.00	**4.18**	**2.36**	0.00

Summary for Subcatchment 3S: to curb inlet

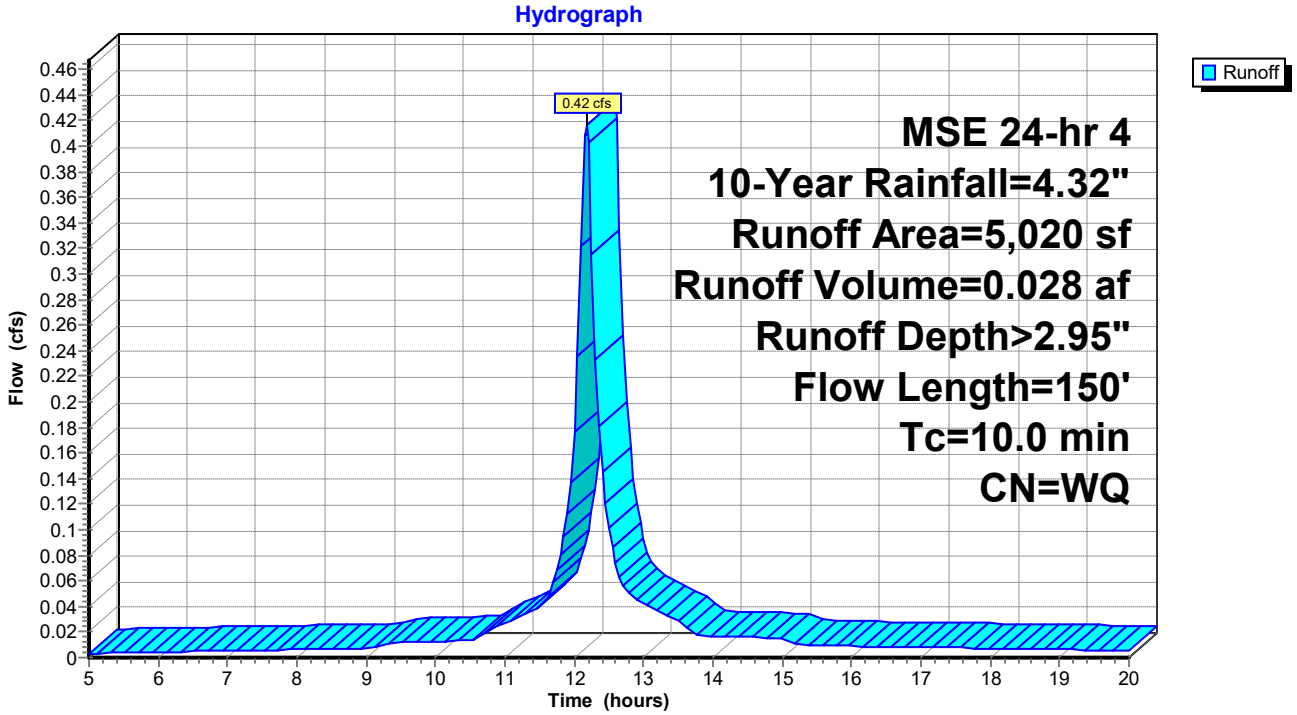
Runoff = 0.42 cfs @ 12.17 hrs, Volume= 0.028 af, Depth> 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	3,200	98	S part parking lot
*	160	98	SW
*	780	61	lawn, HSG B, good
*	780	61	lawn above wall
*	100	98	retain wall
	5,020		Weighted Average
	1,560		31.08% Pervious Area
	3,460		68.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	150		0.25		**Direct Entry, LAXVC lawn via AC pavement**

Subcatchment 3S: to curb inlet



Hydrograph for Subcatchment 3S: to curb inlet

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.27	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.30	0.00	0.00
6.75	0.32	0.00	0.01
7.00	0.34	0.00	0.01
7.25	0.36	0.00	0.01
7.50	0.38	0.00	0.01
7.75	0.41	0.01	0.01
8.00	0.43	0.01	0.01
8.25	0.45	0.01	0.01
8.50	0.47	0.02	0.01
8.75	0.50	0.02	0.01
9.00	0.52	0.03	0.01
9.25	0.56	0.04	0.01
9.50	0.60	0.05	0.01
9.75	0.64	0.06	0.01
10.00	0.68	0.08	0.01
10.25	0.73	0.10	0.01
10.50	0.77	0.11	0.01
10.75	0.84	0.15	0.02
11.00	0.93	0.19	0.03
11.25	1.04	0.25	0.03
11.50	1.17	0.32	0.04
11.75	1.42	0.48	0.07
12.00	2.02	0.92	**0.18**
12.25	2.90	1.66	**0.32**
12.50	3.15	1.87	0.10
12.75	3.28	1.98	0.05
13.00	3.39	2.08	0.04
13.25	3.48	2.16	0.04
13.50	3.55	2.23	0.03
13.75	3.59	2.27	0.02
14.00	3.64	2.30	0.02
14.25	3.68	2.34	0.02
14.50	3.72	2.38	0.02
14.75	3.76	2.42	0.02
15.00	3.80	2.45	0.02
15.25	3.82	2.47	0.01
15.50	3.85	2.50	0.01
15.75	3.87	2.52	0.01
16.00	3.89	2.54	0.01
16.25	3.91	2.56	0.01
16.50	3.94	2.58	0.01
16.75	3.96	2.60	0.01
17.00	3.98	2.62	0.01
17.25	4.00	2.63	0.01
17.50	4.02	2.65	0.01
17.75	4.04	2.67	0.01
18.00	4.05	2.69	0.01
18.25	4.07	2.70	0.01
18.50	4.09	2.72	0.01
18.75	4.11	2.73	0.01
19.00	4.12	2.75	0.01
19.25	4.14	2.76	0.01
19.50	4.15	2.78	0.01
19.75	4.17	2.79	0.01
20.00	**4.18**	**2.80**	0.01

Summary for Subcatchment 4S: to W biofilter

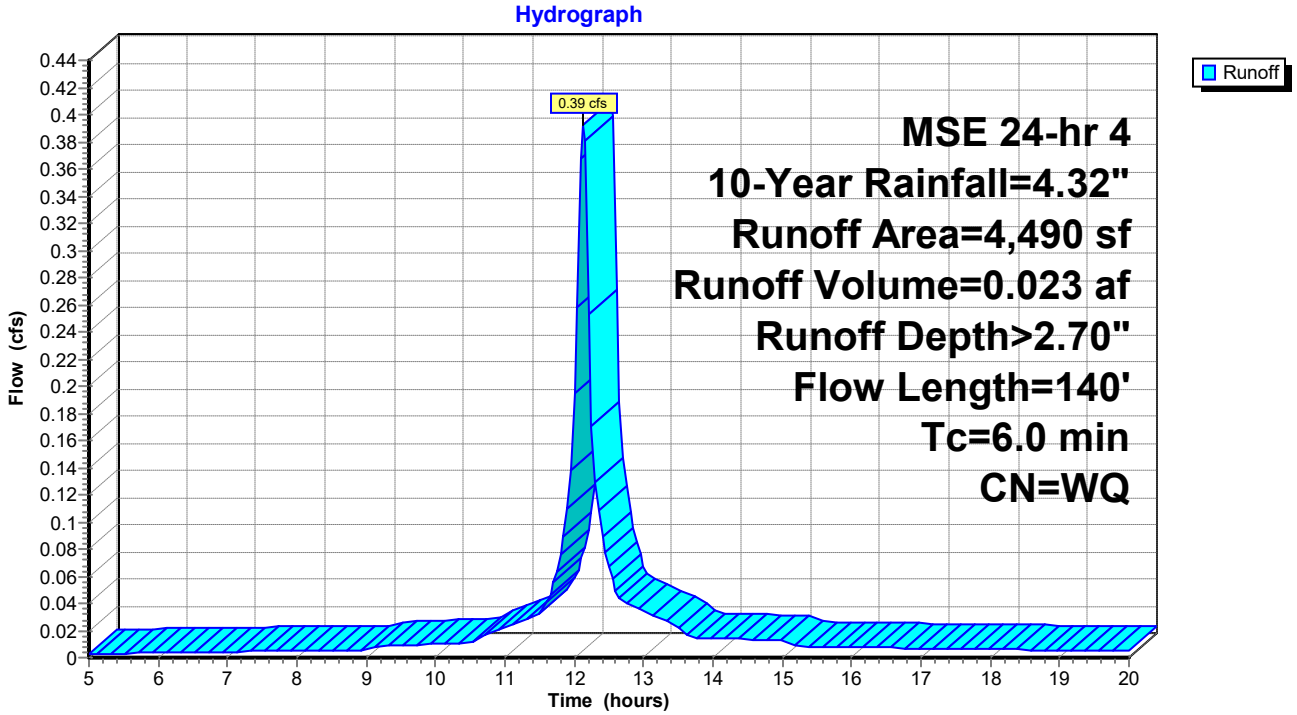
Runoff = 0.39 cfs @ 12.13 hrs, Volume= 0.023 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	2,000	98	N part driveway
*	230	98	N part parking lot
*	1,600	61	lawn, HSG B, good
*	460	100	bio media
*	200	61	landscape
	4,490		Weighted Average
	1,800		40.09% Pervious Area
	2,690		59.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	140		0.39		**Direct Entry, lawn via parking**

Subcatchment 4S: to W biofilter



Hydrograph for Subcatchment 4S: to W biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.27	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.30	0.00	0.00
6.75	0.32	0.00	0.00
7.00	0.34	0.00	0.00
7.25	0.36	0.00	0.00
7.50	0.38	0.00	0.00
7.75	0.41	0.00	0.00
8.00	0.43	0.00	0.01
8.25	0.45	0.00	0.01
8.50	0.47	0.00	0.01
8.75	0.50	0.00	0.01
9.00	0.52	0.01	0.01
9.25	0.56	0.01	0.01
9.50	0.60	0.02	0.01
9.75	0.64	0.02	0.01
10.00	0.68	0.03	0.01
10.25	0.73	0.04	0.01
10.50	0.77	0.05	0.01
10.75	0.84	0.08	0.02
11.00	0.93	0.11	0.02
11.25	1.04	0.15	0.03
11.50	1.17	0.21	0.03
11.75	1.42	0.33	0.06
12.00	2.02	0.71	**0.19**
12.25	2.90	1.37	**0.17**
12.50	3.15	1.57	0.07
12.75	3.28	1.67	0.04
13.00	3.39	1.76	0.03
13.25	3.48	1.84	0.03
13.50	3.55	1.90	0.02
13.75	3.59	1.94	0.01
14.00	3.64	1.97	0.01
14.25	3.68	2.01	0.01
14.50	3.72	2.04	0.01
14.75	3.76	2.08	0.01
15.00	3.80	2.11	0.01
15.25	3.82	2.13	0.01
15.50	3.85	2.15	0.01
15.75	3.87	2.17	0.01
16.00	3.89	2.19	0.01
16.25	3.91	2.21	0.01
16.50	3.94	2.23	0.01
16.75	3.96	2.25	0.01
17.00	3.98	2.27	0.01
17.25	4.00	2.28	0.01
17.50	4.02	2.30	0.01
17.75	4.04	2.32	0.01
18.00	4.05	2.33	0.01
18.25	4.07	2.35	0.01
18.50	4.09	2.36	0.01
18.75	4.11	2.38	0.01
19.00	4.12	2.39	0.01
19.25	4.14	2.41	0.01
19.50	4.15	2.42	0.00
19.75	4.17	2.43	0.00
20.00	**4.18**	**2.44**	0.00

Summary for Subcatchment 5S: to NDS 13-14-15

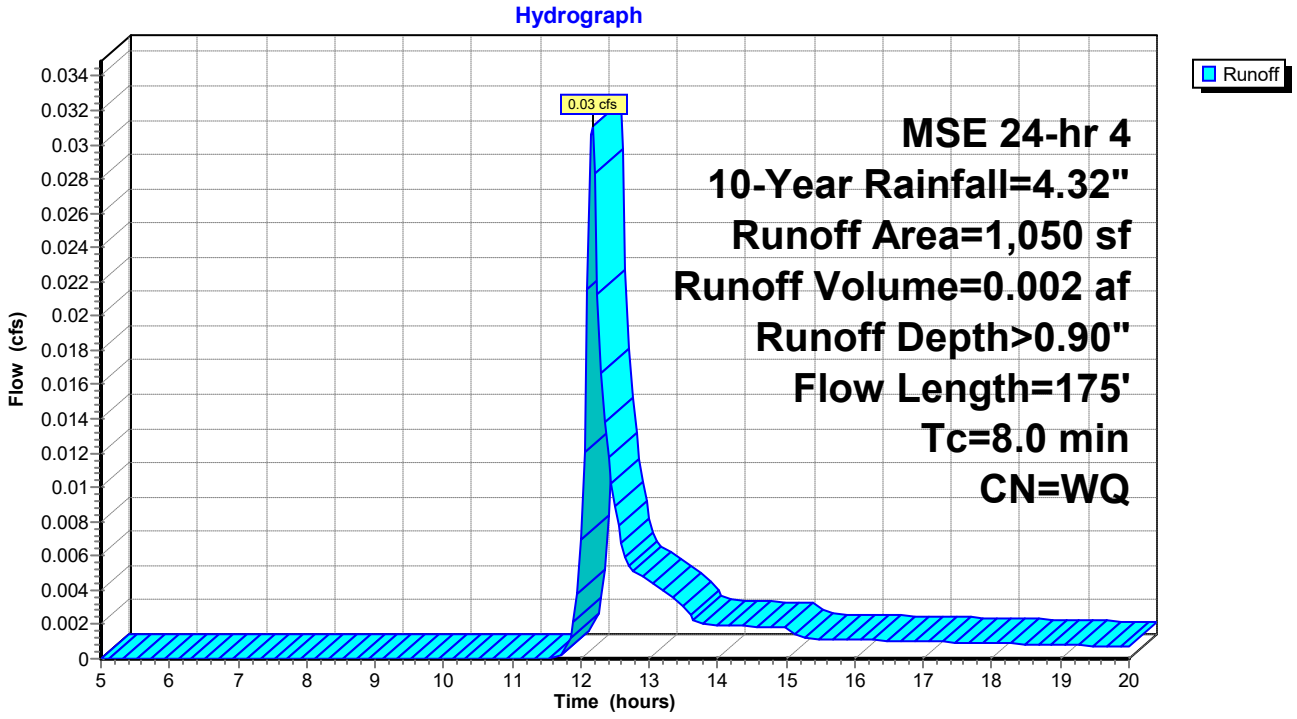
Runoff = 0.03 cfs @ 12.17 hrs, Volume= 0.002 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	550	61	NDS 14-15 lawn berm, HSG B, good
*	500	61	NDS 13 lawn
	1,050		Weighted Average
	1,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	175		0.36		**Direct Entry, lawn berm**

Subcatchment 5S: to NDS 13-14-15



Hydrograph for Subcatchment 5S: to NDS 13-14-15

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.27	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.30	0.00	0.00
6.75	0.32	0.00	0.00
7.00	0.34	0.00	0.00
7.25	0.36	0.00	0.00
7.50	0.38	0.00	0.00
7.75	0.41	0.00	0.00
8.00	0.43	0.00	0.00
8.25	0.45	0.00	0.00
8.50	0.47	0.00	0.00
8.75	0.50	0.00	0.00
9.00	0.52	0.00	0.00
9.25	0.56	0.00	0.00
9.50	0.60	0.00	0.00
9.75	0.64	0.00	0.00
10.00	0.68	0.00	0.00
10.25	0.73	0.00	0.00
10.50	0.77	0.00	0.00
10.75	0.84	0.00	0.00
11.00	0.93	0.00	0.00
11.25	1.04	0.00	0.00
11.50	1.17	0.00	0.00
11.75	1.42	0.00	0.00
12.00	2.02	0.08	**0.01**
12.25	2.90	0.33	**0.02**
12.50	3.15	0.42	0.01
12.75	3.28	0.48	0.01
13.00	3.39	0.52	0.00
13.25	3.48	0.56	0.00
13.50	3.55	0.59	0.00
13.75	3.59	0.61	0.00
14.00	3.64	0.63	0.00
14.25	3.68	0.65	0.00
14.50	3.72	0.67	0.00
14.75	3.76	0.69	0.00
15.00	3.80	0.71	0.00
15.25	3.82	0.72	0.00
15.50	3.85	0.74	0.00
15.75	3.87	0.75	0.00
16.00	3.89	0.76	0.00
16.25	3.91	0.77	0.00
16.50	3.94	0.78	0.00
16.75	3.96	0.79	0.00
17.00	3.98	0.80	0.00
17.25	4.00	0.81	0.00
17.50	4.02	0.82	0.00
17.75	4.04	0.83	0.00
18.00	4.05	0.84	0.00
18.25	4.07	0.85	0.00
18.50	4.09	0.86	0.00
18.75	4.11	0.87	0.00
19.00	4.12	0.88	0.00
19.25	4.14	0.88	0.00
19.50	4.15	0.89	0.00
19.75	4.17	0.90	0.00
20.00	**4.18**	**0.91**	0.00

Summary for Subcatchment 6S: untreated

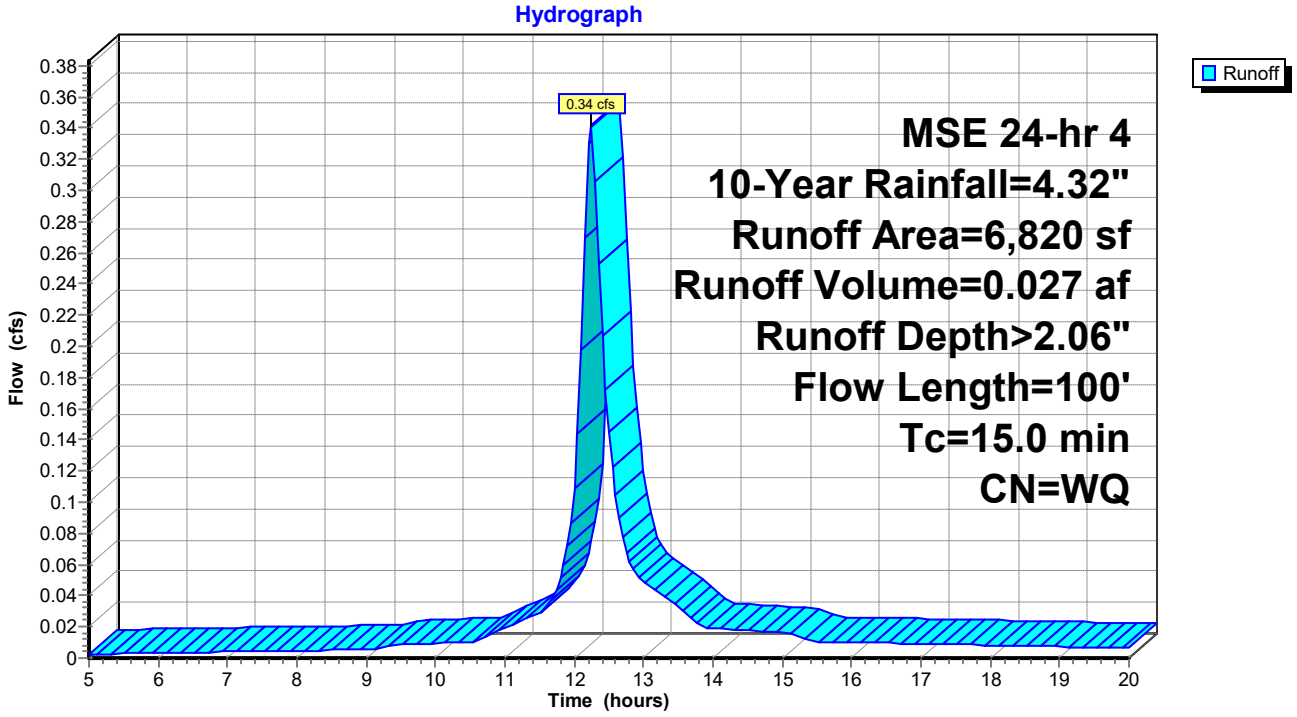
Runoff = 0.34 cfs @ 12.24 hrs, Volume= 0.027 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	2,400	98	S driveway
*	3,400	61	lawn, HSG B, good
*	750	61	bark mulch landscape
*	270	98	retain wall
	6,820		Weighted Average
	4,150		60.85% Pervious Area
	2,670		39.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100		0.11		**Direct Entry, landscape to street**

Subcatchment 6S: untreated



Hydrograph for Subcatchment 6S: untreated

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.27	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.30	0.00	0.00
6.75	0.32	0.00	0.00
7.00	0.34	0.00	0.00
7.25	0.36	0.00	0.00
7.50	0.38	0.00	0.00
7.75	0.41	0.00	0.00
8.00	0.43	0.00	0.00
8.25	0.45	0.00	0.00
8.50	0.47	0.00	0.01
8.75	0.50	0.00	0.01
9.00	0.52	0.00	0.01
9.25	0.56	0.00	0.01
9.50	0.60	0.00	0.01
9.75	0.64	0.00	0.01
10.00	0.68	0.00	0.01
10.25	0.73	0.00	0.01
10.50	0.77	0.00	0.01
10.75	0.84	0.01	0.01
11.00	0.93	0.02	0.02
11.25	1.04	0.04	0.02
11.50	1.17	0.07	0.03
11.75	1.42	0.14	0.04
12.00	2.02	0.39	0.11
12.25	2.90	0.90	**0.34**
12.50	3.15	1.06	0.14
12.75	3.28	1.15	0.07
13.00	3.39	1.22	0.05
13.25	3.48	1.28	0.04
13.50	3.55	1.34	0.03
13.75	3.59	1.37	0.02
14.00	3.64	1.40	0.02
14.25	3.68	1.43	0.02
14.50	3.72	1.46	0.02
14.75	3.76	1.49	0.02
15.00	3.80	1.52	0.02
15.25	3.82	1.53	0.01
15.50	3.85	1.55	0.01
15.75	3.87	1.57	0.01
16.00	3.89	1.59	0.01
16.25	3.91	1.60	0.01
16.50	3.94	1.62	0.01
16.75	3.96	1.63	0.01
17.00	3.98	1.65	0.01
17.25	4.00	1.67	0.01
17.50	4.02	1.68	0.01
17.75	4.04	1.69	0.01
18.00	4.05	1.71	0.01
18.25	4.07	1.72	0.01
18.50	4.09	1.73	0.01
18.75	4.11	1.75	0.01
19.00	4.12	1.76	0.01
19.25	4.14	1.77	0.01
19.50	4.15	1.78	0.01
19.75	4.17	1.79	0.01
20.00	**4.18**	**1.80**	0.01

Summary for Subcatchment 7S: S 1/2 roof to 8" PVC

[49] Hint: Tc<2dt may require smaller dt

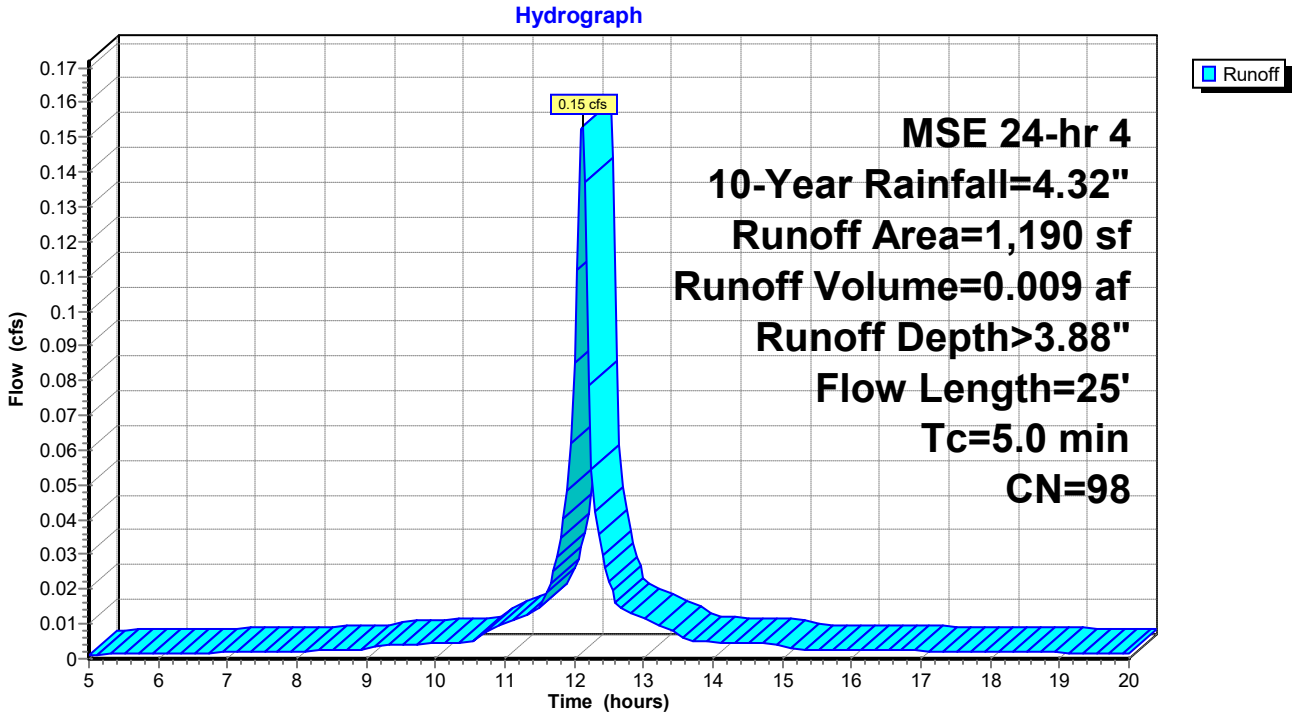
Runoff = 0.15 cfs @ 12.11 hrs, Volume= 0.009 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	1,190	98	1/2 roof
	1,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, S 1/2 roof**

Subcatchment 7S: S 1/2 roof to 8" PVC



Hydrograph for Subcatchment 7S: S 1/2 roof to 8" PVC

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.07	0.00
5.25	0.21	0.08	0.00
5.50	0.23	0.09	0.00
5.75	0.25	0.10	0.00
6.00	0.27	0.12	0.00
6.25	0.28	0.13	0.00
6.50	0.30	0.15	0.00
6.75	0.32	0.16	0.00
7.00	0.34	0.18	0.00
7.25	0.36	0.20	0.00
7.50	0.38	0.22	0.00
7.75	0.41	0.23	0.00
8.00	0.43	0.25	0.00
8.25	0.45	0.27	0.00
8.50	0.47	0.29	0.00
8.75	0.50	0.32	0.00
9.00	0.52	0.34	0.00
9.25	0.56	0.37	0.00
9.50	0.60	0.41	0.00
9.75	0.64	0.45	0.00
10.00	0.68	0.49	0.00
10.25	0.73	0.53	0.00
10.50	0.77	0.57	0.00
10.75	0.84	0.64	0.01
11.00	0.93	0.73	0.01
11.25	1.04	0.83	0.01
11.50	1.17	0.96	0.01
11.75	1.42	1.20	0.03
12.00	2.02	1.80	**0.09**
12.25	2.90	2.67	**0.05**
12.50	3.15	2.91	0.02
12.75	3.28	3.04	0.01
13.00	3.39	3.15	0.01
13.25	3.48	3.24	0.01
13.50	3.55	3.31	0.01
13.75	3.59	3.36	0.00
14.00	3.64	3.40	0.00
14.25	3.68	3.44	0.00
14.50	3.72	3.48	0.00
14.75	3.76	3.52	0.00
15.00	3.80	3.56	0.00
15.25	3.82	3.59	0.00
15.50	3.85	3.61	0.00
15.75	3.87	3.63	0.00
16.00	3.89	3.66	0.00
16.25	3.91	3.68	0.00
16.50	3.94	3.70	0.00
16.75	3.96	3.72	0.00
17.00	3.98	3.74	0.00
17.25	4.00	3.76	0.00
17.50	4.02	3.78	0.00
17.75	4.04	3.80	0.00
18.00	4.05	3.82	0.00
18.25	4.07	3.84	0.00
18.50	4.09	3.85	0.00
18.75	4.11	3.87	0.00
19.00	4.12	3.89	0.00
19.25	4.14	3.90	0.00
19.50	4.15	3.92	0.00
19.75	4.17	3.93	0.00
20.00	**4.18**	**3.94**	0.00

Summary for Subcatchment 8S: NW 1/4 roof

[49] Hint: Tc<2dt may require smaller dt

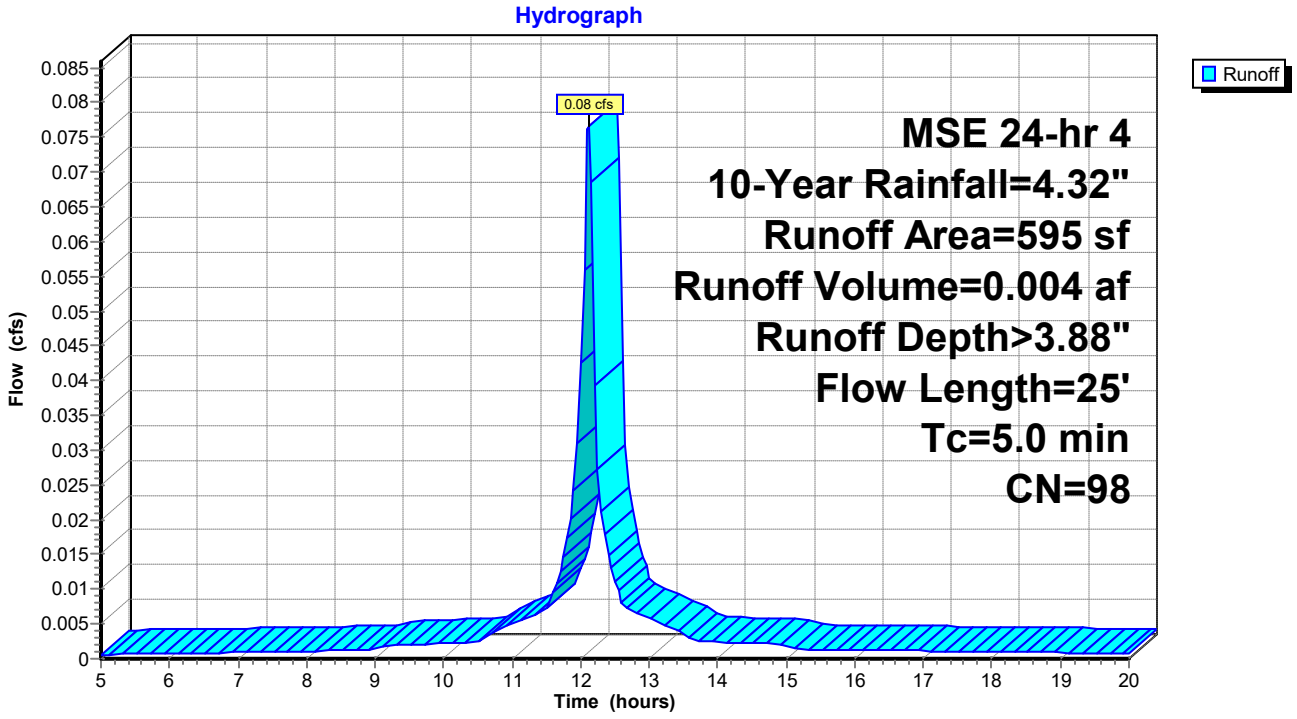
Runoff = 0.08 cfs @ 12.11 hrs, Volume= 0.004 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	595	98	NW 1/4 roof
	595		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, NW 1/4 roof**

Subcatchment 8S: NW 1/4 roof



Hydrograph for Subcatchment 8S: NW 1/4 roof

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.07	0.00
5.25	0.21	0.08	0.00
5.50	0.23	0.09	0.00
5.75	0.25	0.10	0.00
6.00	0.27	0.12	0.00
6.25	0.28	0.13	0.00
6.50	0.30	0.15	0.00
6.75	0.32	0.16	0.00
7.00	0.34	0.18	0.00
7.25	0.36	0.20	0.00
7.50	0.38	0.22	0.00
7.75	0.41	0.23	0.00
8.00	0.43	0.25	0.00
8.25	0.45	0.27	0.00
8.50	0.47	0.29	0.00
8.75	0.50	0.32	0.00
9.00	0.52	0.34	0.00
9.25	0.56	0.37	0.00
9.50	0.60	0.41	0.00
9.75	0.64	0.45	0.00
10.00	0.68	0.49	0.00
10.25	0.73	0.53	0.00
10.50	0.77	0.57	0.00
10.75	0.84	0.64	0.00
11.00	0.93	0.73	0.01
11.25	1.04	0.83	0.01
11.50	1.17	0.96	0.01
11.75	1.42	1.20	0.01
12.00	2.02	1.80	**0.04**
12.25	2.90	2.67	**0.03**
12.50	3.15	2.91	0.01
12.75	3.28	3.04	0.01
13.00	3.39	3.15	0.01
13.25	3.48	3.24	0.00
13.50	3.55	3.31	0.00
13.75	3.59	3.36	0.00
14.00	3.64	3.40	0.00
14.25	3.68	3.44	0.00
14.50	3.72	3.48	0.00
14.75	3.76	3.52	0.00
15.00	3.80	3.56	0.00
15.25	3.82	3.59	0.00
15.50	3.85	3.61	0.00
15.75	3.87	3.63	0.00
16.00	3.89	3.66	0.00
16.25	3.91	3.68	0.00
16.50	3.94	3.70	0.00
16.75	3.96	3.72	0.00
17.00	3.98	3.74	0.00
17.25	4.00	3.76	0.00
17.50	4.02	3.78	0.00
17.75	4.04	3.80	0.00
18.00	4.05	3.82	0.00
18.25	4.07	3.84	0.00
18.50	4.09	3.85	0.00
18.75	4.11	3.87	0.00
19.00	4.12	3.89	0.00
19.25	4.14	3.90	0.00
19.50	4.15	3.92	0.00
19.75	4.17	3.93	0.00
20.00	**4.18**	**3.94**	0.00

Summary for Reach 3R: S. 8" PVC

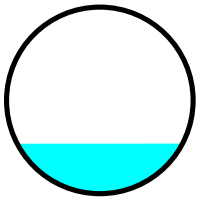
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.051 ac, 53.13% Impervious, Inflow Depth > 2.48" for 10-Year event
Inflow = 0.18 cfs @ 12.12 hrs, Volume= 0.011 af
Outflow = 0.17 cfs @ 12.14 hrs, Volume= 0.011 af, Atten= 3%, Lag= 1.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.35 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.81 fps, Avg. Travel Time= 1.8 min

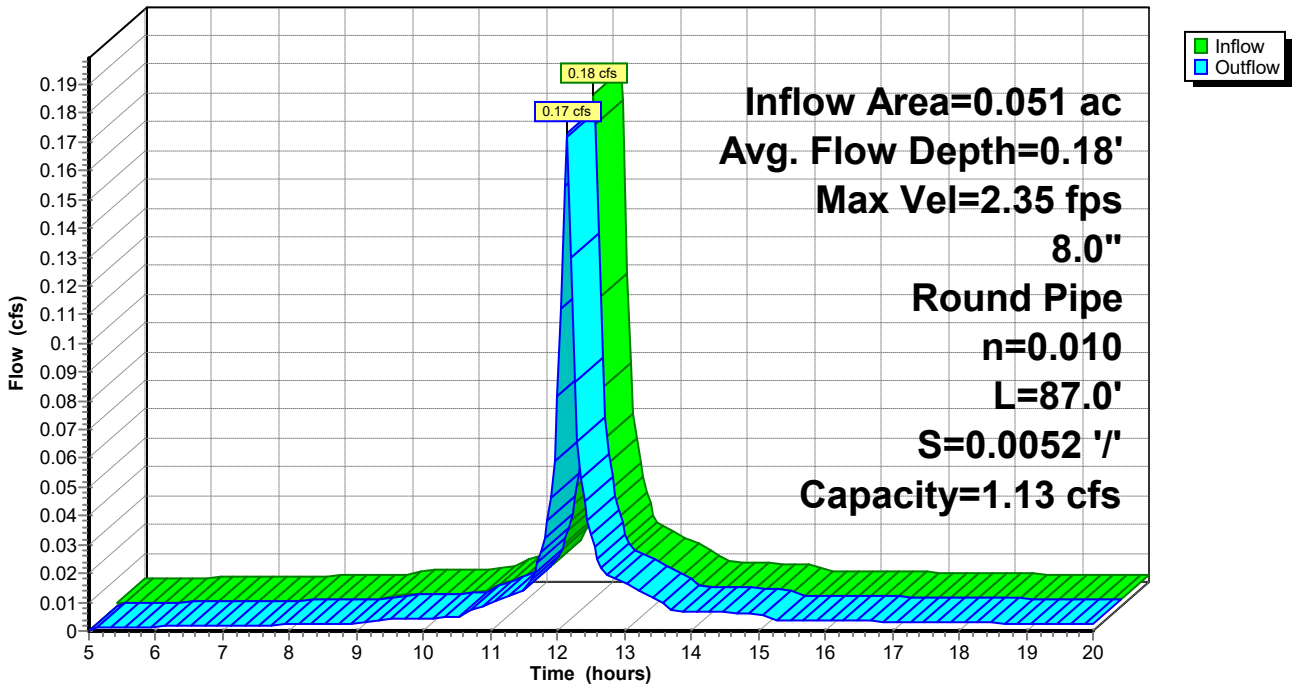
Peak Storage= 7 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.13 cfs

8.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 87.0' Slope= 0.0052 '/'
Inlet Invert= 676.38', Outlet Invert= 675.93'



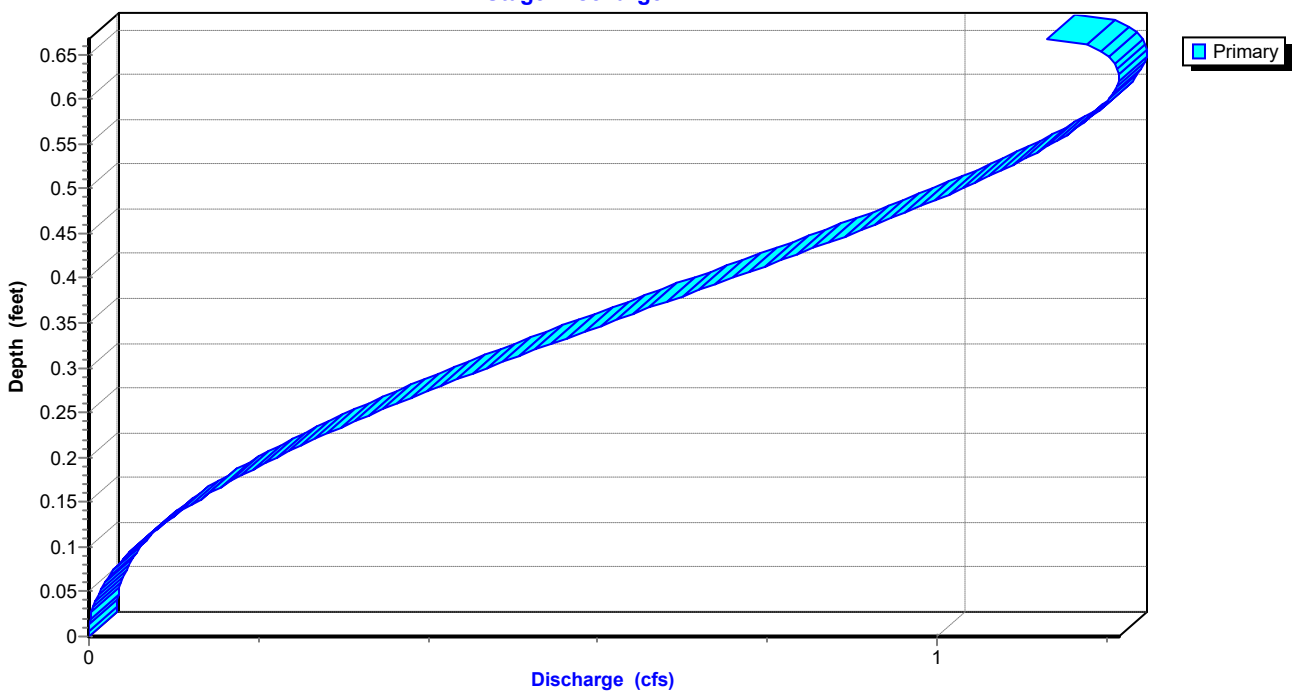
Reach 3R: S. 8" PVC

Hydrograph

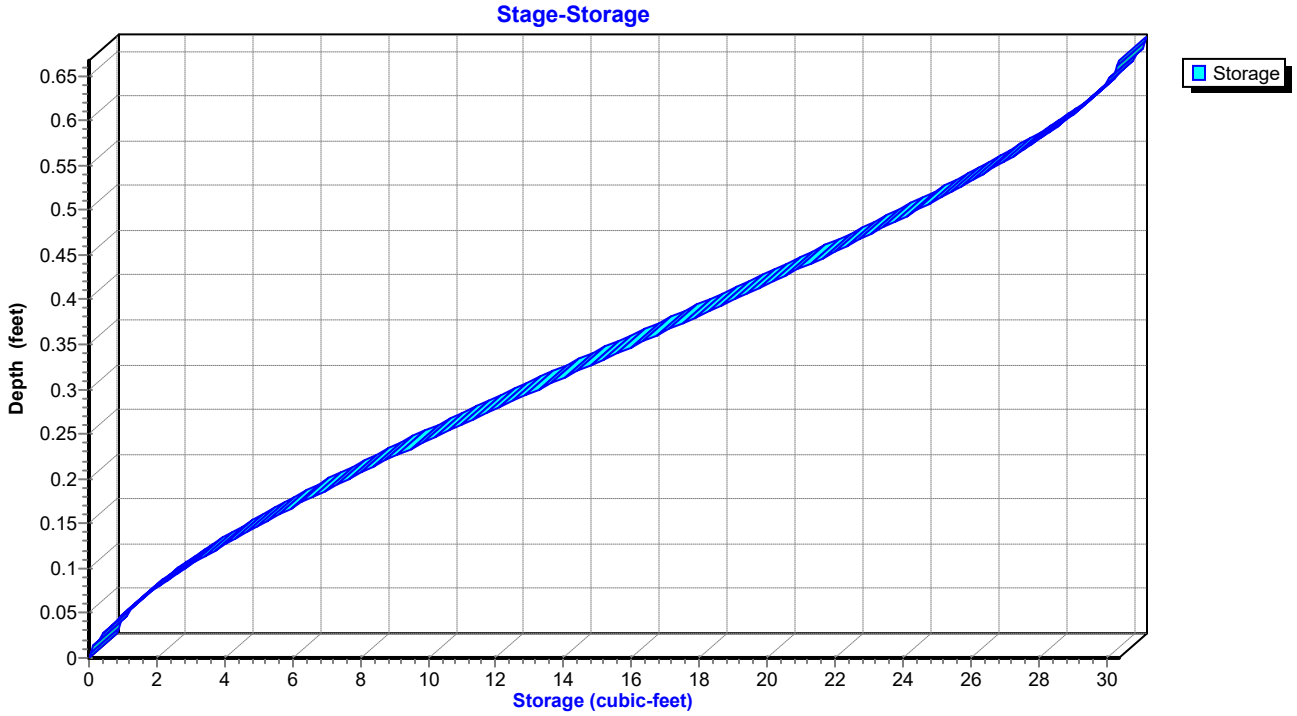


Reach 3R: S. 8" PVC

Stage-Discharge



Reach 3R: S. 8" PVC



Hydrograph for Reach 3R: S. 8" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	676.38	0.00
5.50	0.00	0	676.40	0.00
6.00	0.00	0	676.40	0.00
6.50	0.00	0	676.40	0.00
7.00	0.00	0	676.40	0.00
7.50	0.00	0	676.40	0.00
8.00	0.00	0	676.40	0.00
8.50	0.00	0	676.40	0.00
9.00	0.00	0	676.40	0.00
9.50	0.00	0	676.41	0.00
10.00	0.00	0	676.41	0.00
10.50	0.00	1	676.41	0.00
11.00	0.01	1	676.42	0.01
11.50	0.01	1	676.43	0.01
12.00	**0.09**	**4**	**676.50**	**0.08**
12.50	**0.03**	**2**	**676.46**	**0.03**
13.00	0.02	1	676.44	0.02
13.50	0.01	1	676.43	0.01
14.00	0.01	1	676.42	0.01
14.50	0.01	1	676.42	0.01
15.00	0.01	1	676.41	0.01
15.50	0.00	0	676.41	0.00
16.00	0.00	0	676.41	0.00
16.50	0.00	0	676.41	0.00
17.00	0.00	0	676.41	0.00
17.50	0.00	0	676.41	0.00
18.00	0.00	0	676.40	0.00
18.50	0.00	0	676.40	0.00
19.00	0.00	0	676.40	0.00
19.50	0.00	0	676.40	0.00
20.00	0.00	0	676.40	0.00

Stage-Discharge for Reach 3R: S. 8" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
676.38	0.00	0.00
676.39	0.37	0.00
676.40	0.60	0.00
676.41	0.78	0.00
676.42	0.94	0.01
676.43	1.08	0.01
676.44	1.21	0.02
676.45	1.34	0.03
676.46	1.46	0.03
676.47	1.57	0.04
676.48	1.67	0.05
676.49	1.77	0.07
676.50	1.87	0.08
676.51	1.96	0.09
676.52	2.05	0.11
676.53	2.13	0.13
676.54	2.22	0.14
676.55	2.29	0.16
676.56	2.37	0.18
676.57	2.44	0.20
676.58	2.51	0.22
676.59	2.58	0.24
676.60	2.65	0.27
676.61	2.71	0.29
676.62	2.77	0.31
676.63	2.83	0.34
676.64	2.88	0.36
676.65	2.94	0.39
676.66	2.99	0.42
676.67	3.04	0.44
676.68	3.09	0.47
676.69	3.14	0.50
676.70	3.18	0.53
676.71	3.22	0.56
676.72	3.26	0.58
676.73	3.30	0.61
676.74	3.34	0.64
676.75	3.38	0.67
676.76	3.41	0.70
676.77	3.44	0.73
676.78	3.47	0.76
676.79	3.50	0.79
676.80	3.53	0.82
676.81	3.55	0.85
676.82	3.57	0.87
676.83	3.59	0.90
676.84	3.61	0.93
676.85	3.63	0.95
676.86	3.64	0.98
676.87	3.66	1.01
676.88	3.67	1.03
676.89	3.68	1.05
676.90	3.68	1.08
676.91	3.69	1.10
676.92	**3.69**	1.12
676.93	3.69	1.14
676.94	3.69	1.15
676.95	3.68	1.17
676.96	3.67	1.18
676.97	3.66	1.19
676.98	3.64	1.20
676.99	3.62	1.21
677.00	3.59	**1.21**
677.01	3.56	1.21
677.02	3.51	1.21
677.03	3.46	1.20
677.04	3.38	1.18
677.05	3.17	1.11

Stage-Area-Storage for Reach 3R: S. 8" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
676.38	0.0	0
676.39	0.0	0
676.40	0.0	0
676.41	0.0	0
676.42	0.0	1
676.43	0.0	1
676.44	0.0	1
676.45	0.0	2
676.46	0.0	2
676.47	0.0	2
676.48	0.0	3
676.49	0.0	3
676.50	0.0	4
676.51	0.0	4
676.52	0.1	5
676.53	0.1	5
676.54	0.1	6
676.55	0.1	6
676.56	0.1	7
676.57	0.1	7
676.58	0.1	8
676.59	0.1	8
676.60	0.1	9
676.61	0.1	9
676.62	0.1	10
676.63	0.1	10
676.64	0.1	11
676.65	0.1	12
676.66	0.1	12
676.67	0.1	13
676.68	0.2	13
676.69	0.2	14
676.70	0.2	14
676.71	0.2	15
676.72	0.2	16
676.73	0.2	16
676.74	0.2	17
676.75	0.2	17
676.76	0.2	18
676.77	0.2	18
676.78	0.2	19
676.79	0.2	20
676.80	0.2	20
676.81	0.2	21
676.82	0.2	21
676.83	0.3	22
676.84	0.3	22
676.85	0.3	23
676.86	0.3	23
676.87	0.3	24
676.88	0.3	24
676.89	0.3	25
676.90	0.3	25
676.91	0.3	26
676.92	0.3	26
676.93	0.3	27
676.94	0.3	27
676.95	0.3	28
676.96	0.3	28
676.97	0.3	28
676.98	0.3	29
676.99	0.3	29
677.00	0.3	29
677.01	0.3	30
677.02	0.3	30
677.03	0.3	30
677.04	0.3	30
677.05	**0.3**	**30**

Summary for Reach 4R: W. 6" PVC

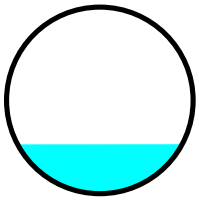
[52] Hint: Inlet/Outlet conditions not evaluated
[79] Warning: Submerged Pond 7P Primary device # 1 INLET by 0.11'

Inflow Area = 0.326 ac, 63.36% Impervious, Inflow Depth > 2.47" for 10-Year event
Inflow = 0.41 cfs @ 12.37 hrs, Volume= 0.067 af
Outflow = 0.41 cfs @ 12.38 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.82 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.57 fps, Avg. Travel Time= 0.3 min

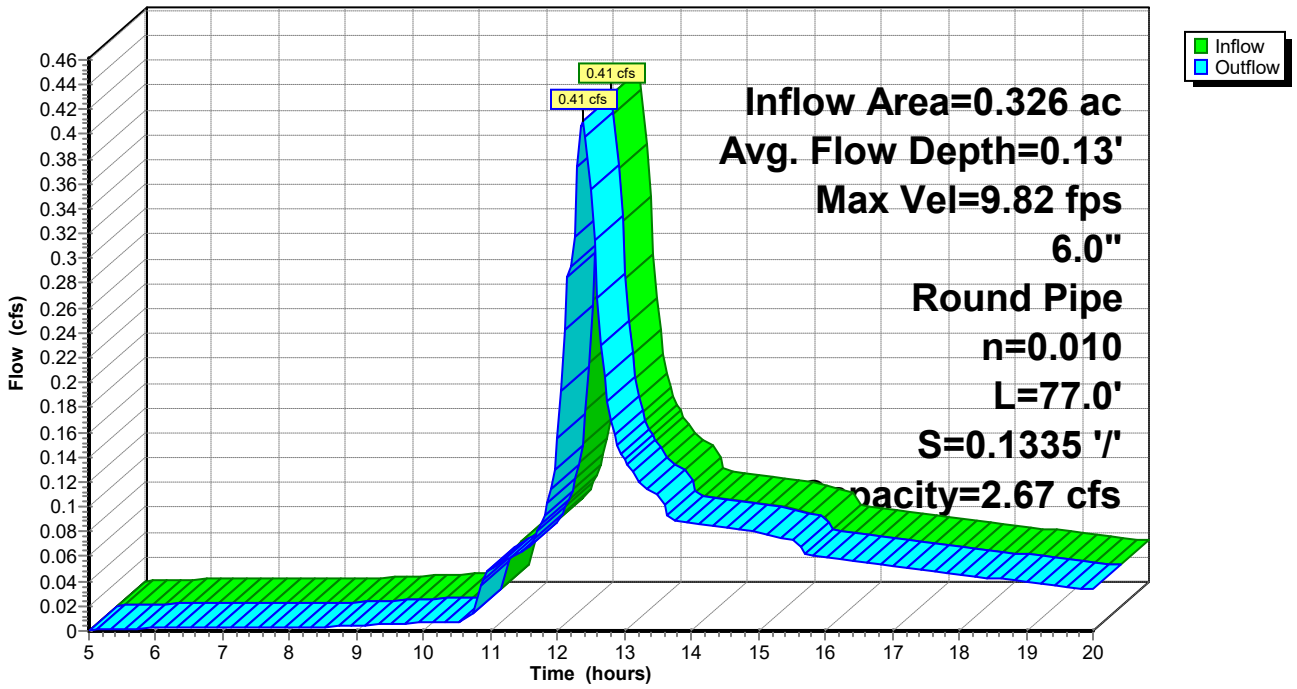
Peak Storage= 3 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 2.67 cfs

6.0" Round Pipe
n= 0.010
Length= 77.0' Slope= 0.1335 '/'
Inlet Invert= 668.80', Outlet Invert= 658.52'



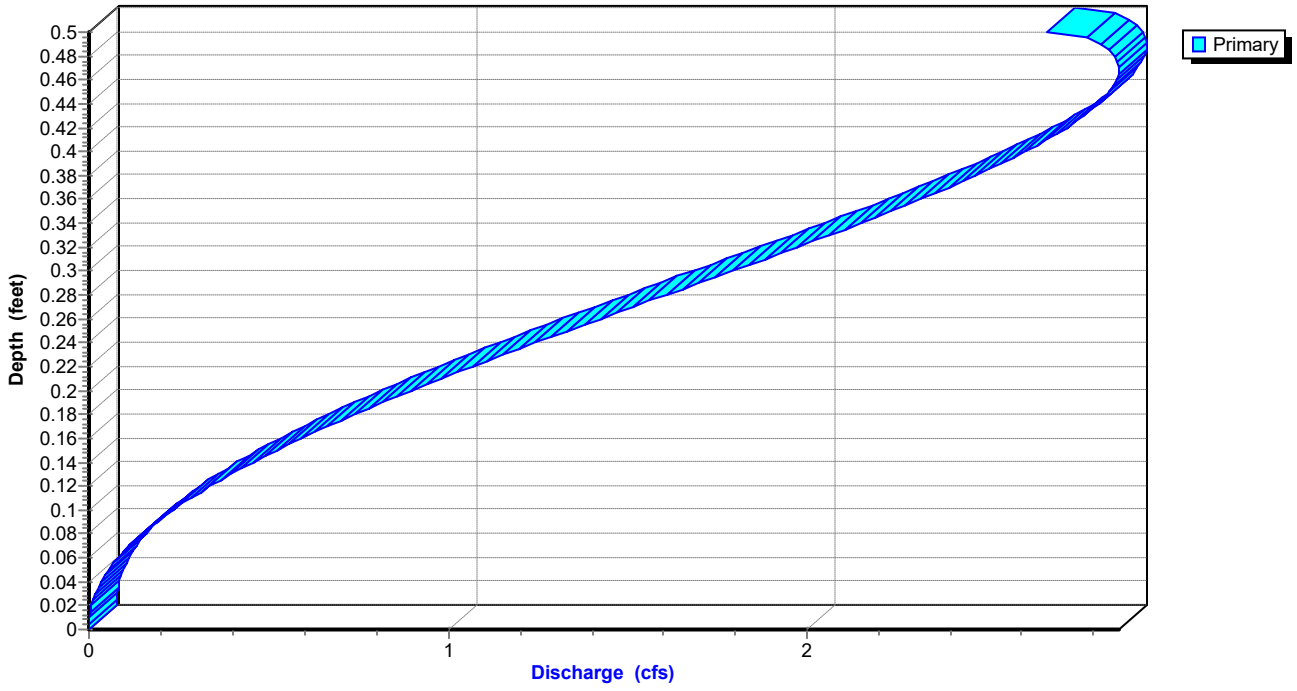
Reach 4R: W. 6" PVC

Hydrograph

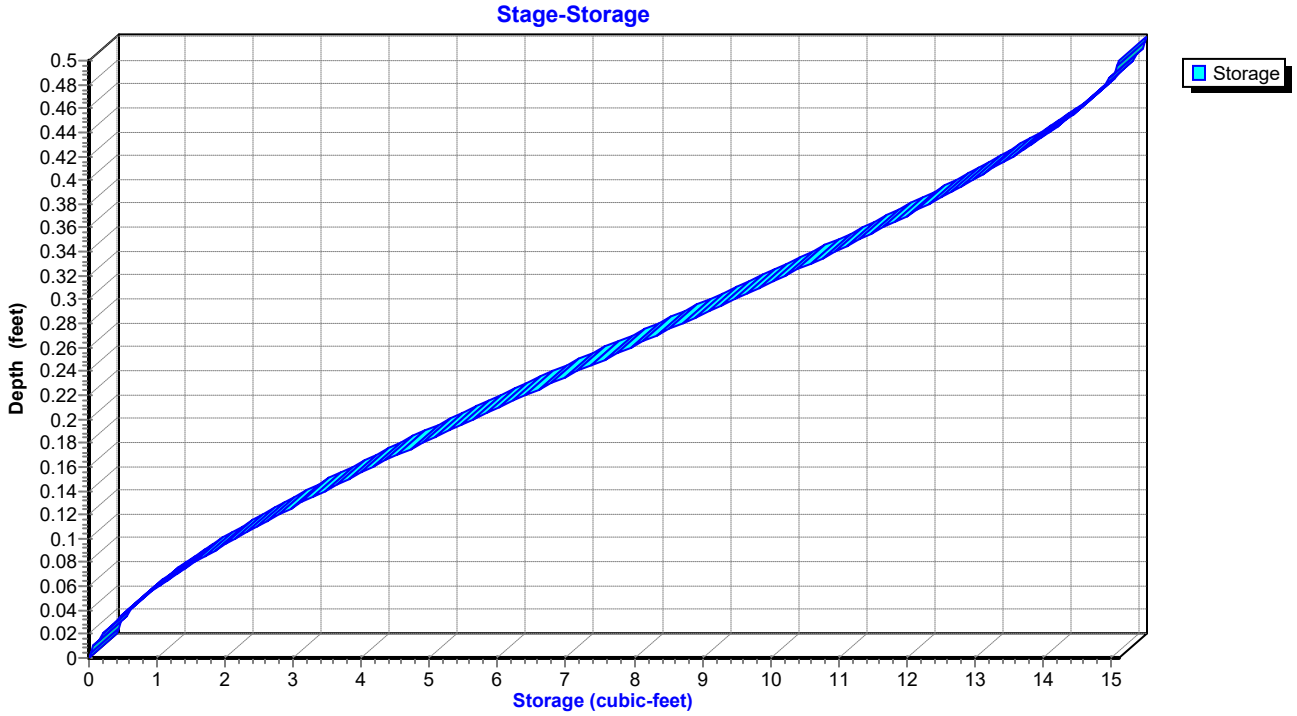


Reach 4R: W. 6" PVC

Stage-Discharge



Reach 4R: W. 6" PVC



Hydrograph for Reach 4R: W. 6" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	668.80	0.00
5.50	0.00	0	668.81	0.00
6.00	0.00	0	668.81	0.00
6.50	0.00	0	668.81	0.00
7.00	0.00	0	668.81	0.00
7.50	0.00	0	668.81	0.00
8.00	0.00	0	668.81	0.00
8.50	0.00	0	668.81	0.00
9.00	0.00	0	668.81	0.00
9.50	0.01	0	668.82	0.01
10.00	0.01	0	668.82	0.01
10.50	0.01	0	668.82	0.01
11.00	0.05	1	668.85	0.05
11.50	0.06	1	668.85	0.06
12.00	**0.16**	**2**	**668.88**	**0.16**
12.50	**0.35**	**3**	**668.92**	**0.36**
13.00	0.14	1	668.88	0.14
13.50	0.11	1	668.87	0.11
14.00	0.09	1	668.86	0.09
14.50	0.08	1	668.86	0.08
15.00	0.08	1	668.86	0.08
15.50	0.07	1	668.86	0.07
16.00	0.06	1	668.85	0.06
16.50	0.06	1	668.85	0.06
17.00	0.05	1	668.85	0.05
17.50	0.05	1	668.85	0.05
18.00	0.05	1	668.85	0.05
18.50	0.04	1	668.84	0.04
19.00	0.04	1	668.84	0.04
19.50	0.04	1	668.84	0.04
20.00	0.03	1	668.84	0.03

Stage-Discharge for Reach 4R: W. 6" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
668.80	0.00	0.00
668.81	1.91	0.00
668.82	3.01	0.01
668.83	3.93	0.02
668.84	4.72	0.03
668.85	5.45	0.06
668.86	6.11	0.08
668.87	6.72	0.11
668.88	7.30	0.15
668.89	7.84	0.19
668.90	8.35	0.23
668.91	8.83	0.28
668.92	9.29	0.34
668.93	9.73	0.39
668.94	10.14	0.46
668.95	10.54	0.52
668.96	10.91	0.59
668.97	11.27	0.66
668.98	11.61	0.74
668.99	11.94	0.82
669.00	12.25	0.90
669.01	12.54	0.98
669.02	12.82	1.07
669.03	13.09	1.15
669.04	13.34	1.24
669.05	13.57	1.33
669.06	13.80	1.42
669.07	14.01	1.52
669.08	14.20	1.61
669.09	14.39	1.70
669.10	14.56	1.79
669.11	14.71	1.88
669.12	14.86	1.97
669.13	14.98	2.06
669.14	15.10	2.15
669.15	15.20	2.23
669.16	15.29	2.31
669.17	15.36	2.39
669.18	15.41	2.47
669.19	15.45	2.54
669.20	15.47	2.61
669.21	**15.47**	2.67
669.22	15.46	2.72
669.23	15.42	2.77
669.24	15.35	2.81
669.25	15.26	2.84
669.26	15.14	2.86
669.27	14.97	**2.87**
669.28	14.74	2.86
669.29	14.41	2.82
669.30	13.57	2.67

Stage-Area-Storage for Reach 4R: W. 6" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
668.80	0.0	0
668.81	0.0	0
668.82	0.0	0
668.83	0.0	0
668.84	0.0	1
668.85	0.0	1
668.86	0.0	1
668.87	0.0	1
668.88	0.0	2
668.89	0.0	2
668.90	0.0	2
668.91	0.0	2
668.92	0.0	3
668.93	0.0	3
668.94	0.0	3
668.95	0.0	4
668.96	0.1	4
668.97	0.1	5
668.98	0.1	5
668.99	0.1	5
669.00	0.1	6
669.01	0.1	6
669.02	0.1	6
669.03	0.1	7
669.04	0.1	7
669.05	0.1	8
669.06	0.1	8
669.07	0.1	8
669.08	0.1	9
669.09	0.1	9
669.10	0.1	9
669.11	0.1	10
669.12	0.1	10
669.13	0.1	11
669.14	0.1	11
669.15	0.1	11
669.16	0.2	12
669.17	0.2	12
669.18	0.2	12
669.19	0.2	13
669.20	0.2	13
669.21	0.2	13
669.22	0.2	14
669.23	0.2	14
669.24	0.2	14
669.25	0.2	14
669.26	0.2	15
669.27	0.2	15
669.28	0.2	15
669.29	0.2	15
669.30	**0.2**	**15**

Summary for Pond 3P: E biofilter LINED

[82] Warning: Early inflow requires earlier time span
[42] Hint: Gap in defined storage above volume #4 at 681.34'
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=13)

Inflow Area = 0.043 ac, 57.33% Impervious, Inflow Depth > 2.62" for 10-Year event
Inflow = 0.15 cfs @ 12.15 hrs, Volume= 0.009 af
Outflow = 0.03 cfs @ 12.48 hrs, Volume= 0.008 af, Atten= 78%, Lag= 19.8 min
Primary = 0.03 cfs @ 12.48 hrs, Volume= 0.008 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 680.81' @ 12.48 hrs Surf.Area= 540 sf Storage= 178 cf

Plug-Flow detention time= 112.7 min calculated for 0.008 af (87% of inflow)
Center-of-Mass det. time= 71.7 min (821.8 - 750.1)

Volume	Invert	Avail.Storage	Storage Description
#1	678.00'	54 cf	**10.50'W x 15.50'L x 1.00'H sand invert** 163 cf Overall x 33.0% Voids
#2	679.00'	66 cf	**10.50'W x 15.50'L x 1.50'H media** 244 cf Overall x 27.0% Voids
#3	680.50'	128 cf	**10.50'W x 15.50'L x 0.60'H top media Z=3.0**
#4	681.10'	195 cf	**39.50'W x 19.50'L x 0.24'H NDS drain Z=3.0**
#5	681.43'	8 cf	**40.00'W x 20.00'L x 0.01'H weir overflow Z=3.0**
		451 cf	Total Available Storage

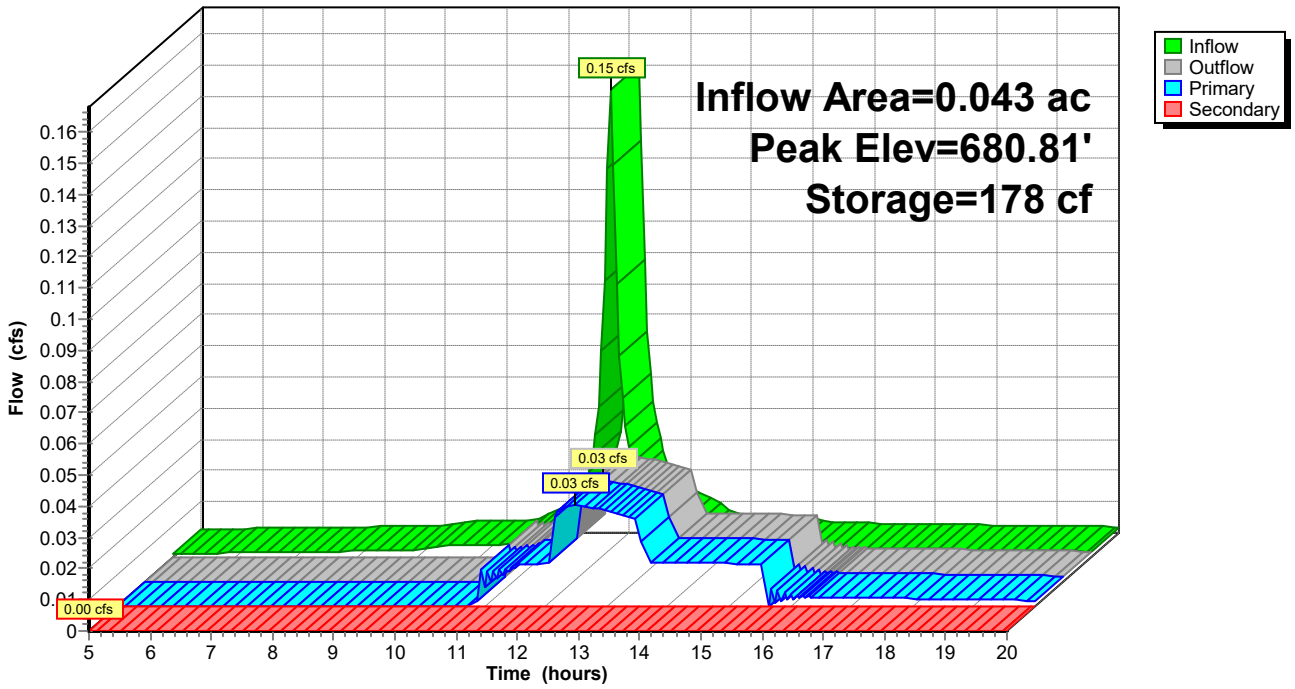
Device	Routing	Invert	Outlet Devices
#1	Secondary	681.34'	**6.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	681.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	678.00'	**3.600 in/hr underdrain over Horizontal area above 678.00'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 163 sf Phase-In= 0.50'

Primary OutFlow Max=0.03 cfs @ 12.48 hrs HW=680.81' (Free Discharge)
└**2=NDS drain** (Controls 0.00 cfs)
└**3=underdrain** (Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=678.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

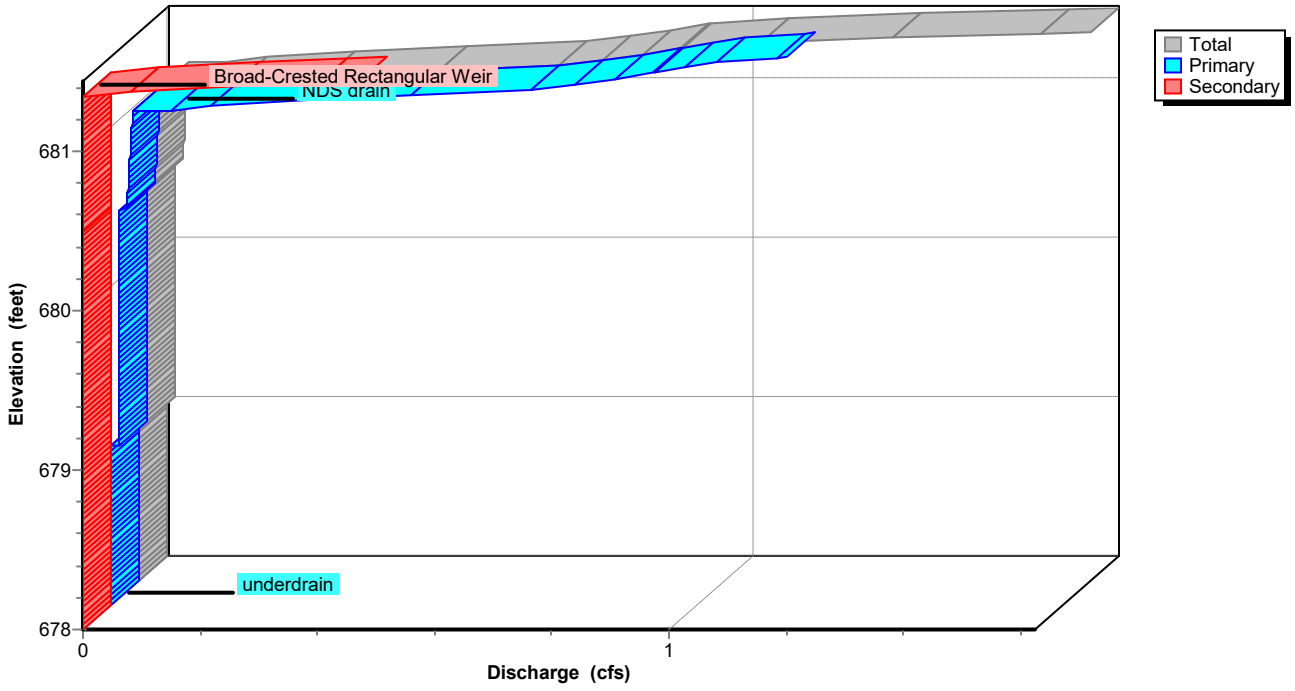
Pond 3P: E biofilter LINED

Hydrograph

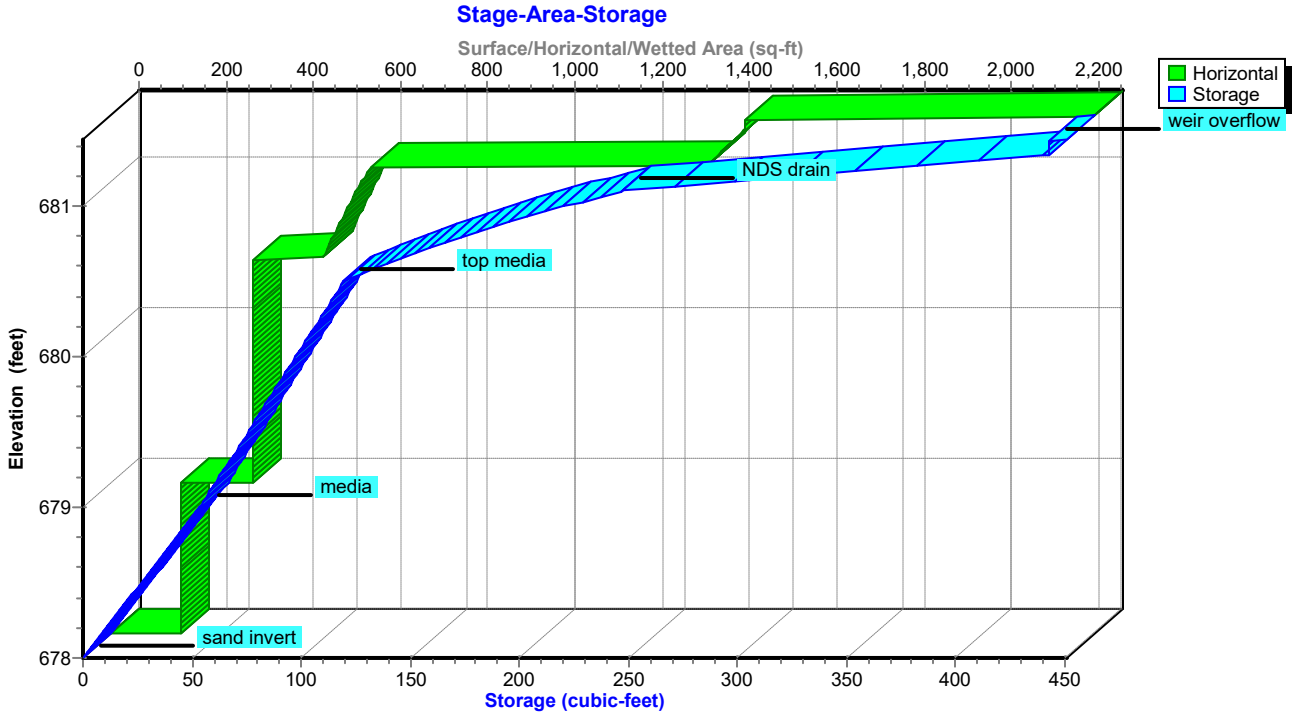


Pond 3P: E biofilter LINED

Stage-Discharge



Pond 3P: E biofilter LINED



Hydrograph for Pond 3P: E biofilter LINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.00	0	678.00	0.00	0.00	**0.00**
5.50	0.00	2	678.04	0.00	0.00	0.00
6.00	0.00	5	678.09	0.00	0.00	0.00
6.50	0.00	7	678.14	0.00	0.00	0.00
7.00	0.00	10	678.19	0.00	0.00	0.00
7.50	0.00	14	678.25	0.00	0.00	0.00
8.00	0.00	17	678.32	0.00	0.00	0.00
8.50	0.00	21	678.39	0.00	0.00	0.00
9.00	0.00	25	678.46	0.00	0.00	0.00
9.50	0.00	31	678.57	0.00	0.00	0.00
10.00	0.00	38	678.70	0.00	0.00	0.00
10.50	0.00	45	678.84	0.00	0.00	0.00
11.00	0.01	54	679.00	0.01	0.01	0.00
11.50	0.01	54	679.00	0.01	0.01	0.00
12.00	**0.07**	79	679.58	0.01	0.01	0.00
12.50	**0.03**	**178**	**680.81**	**0.03**	**0.03**	0.00
13.00	0.01	155	680.70	0.03	0.03	0.00
13.50	0.01	123	680.52	0.03	0.03	0.00
14.00	0.01	106	680.19	0.01	0.01	0.00
14.50	0.01	91	679.85	0.01	0.01	0.00
15.00	0.01	76	679.50	0.01	0.01	0.00
15.50	0.00	58	679.10	0.01	0.01	0.00
16.00	0.00	54	679.00	0.00	0.00	0.00
16.50	0.00	54	679.00	0.00	0.00	0.00
17.00	0.00	54	679.00	0.00	0.00	0.00
17.50	0.00	54	679.00	0.00	0.00	0.00
18.00	0.00	54	679.00	0.00	0.00	0.00
18.50	0.00	54	679.00	0.00	0.00	0.00
19.00	0.00	54	679.00	0.00	0.00	0.00
19.50	0.00	54	679.00	0.00	0.00	0.00
20.00	0.00	54	679.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: E biofilter LINED

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
678.00	0.00	0.00	0.00
678.05	0.00	0.00	0.00
678.10	0.00	0.00	0.00
678.15	0.00	0.00	0.00
678.20	0.00	0.00	0.00
678.25	0.00	0.00	0.00
678.30	0.00	0.00	0.00
678.35	0.00	0.00	0.00
678.40	0.00	0.00	0.00
678.45	0.00	0.00	0.00
678.50	0.00	0.00	0.00
678.55	0.00	0.00	0.00
678.60	0.00	0.00	0.00
678.65	0.00	0.00	0.00
678.70	0.00	0.00	0.00
678.75	0.00	0.00	0.00
678.80	0.00	0.00	0.00
678.85	0.00	0.00	0.00
678.90	0.00	0.00	0.00
678.95	0.00	0.00	0.00
679.00	0.01	0.01	0.00
679.05	0.01	0.01	0.00
679.10	0.01	0.01	0.00
679.15	0.01	0.01	0.00
679.20	0.01	0.01	0.00
679.25	0.01	0.01	0.00
679.30	0.01	0.01	0.00
679.35	0.01	0.01	0.00
679.40	0.01	0.01	0.00
679.45	0.01	0.01	0.00
679.50	0.01	0.01	0.00
679.55	0.01	0.01	0.00
679.60	0.01	0.01	0.00
679.65	0.01	0.01	0.00
679.70	0.01	0.01	0.00
679.75	0.01	0.01	0.00
679.80	0.01	0.01	0.00
679.85	0.01	0.01	0.00
679.90	0.01	0.01	0.00
679.95	0.01	0.01	0.00
680.00	0.01	0.01	0.00
680.05	0.01	0.01	0.00
680.10	0.01	0.01	0.00
680.15	0.01	0.01	0.00
680.20	0.01	0.01	0.00
680.25	0.01	0.01	0.00
680.30	0.01	0.01	0.00
680.35	0.01	0.01	0.00
680.40	0.01	0.01	0.00
680.45	0.01	0.01	0.00
680.50	0.03	0.03	0.00
680.55	0.03	0.03	0.00
680.60	0.03	0.03	0.00
680.65	0.03	0.03	0.00
680.70	0.03	0.03	0.00
680.75	0.03	0.03	0.00
680.80	0.03	0.03	0.00
680.85	0.03	0.03	0.00
680.90	0.03	0.03	0.00
680.95	0.03	0.03	0.00
681.00	0.04	0.04	0.00
681.05	0.04	0.04	0.00
681.10	0.10	0.10	0.00
681.15	0.25	0.25	0.00
681.20	0.52	0.52	0.00
681.25	0.75	0.75	0.00
681.30	0.86	0.86	0.00
681.35	0.96	0.95	0.01
681.40	**1.24**	**1.03**	**0.22**

Stage-Area-Storage for Pond 3P: E biofilter LINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
678.00	163	0
678.05	163	3
678.10	163	5
678.15	163	8
678.20	163	11
678.25	163	13
678.30	163	16
678.35	163	19
678.40	163	21
678.45	163	24
678.50	163	27
678.55	163	30
678.60	163	32
678.65	163	35
678.70	163	38
678.75	163	40
678.80	163	43
678.85	163	46
678.90	163	48
678.95	163	51
679.00	326	54
679.05	326	56
679.10	326	58
679.15	326	60
679.20	326	62
679.25	326	65
679.30	326	67
679.35	326	69
679.40	326	71
679.45	326	73
679.50	326	76
679.55	326	78
679.60	326	80
679.65	326	82
679.70	326	84
679.75	326	87
679.80	326	89
679.85	326	91
679.90	326	93
679.95	326	95
680.00	326	98
680.05	326	100
680.10	326	102
680.15	326	104
680.20	326	106
680.25	326	109
680.30	326	111
680.35	326	113
680.40	326	115
680.45	326	117
680.50	488	120
680.55	496	128
680.60	504	137
680.65	512	146
680.70	521	155
680.75	530	165
680.80	538	176
680.85	547	187
680.90	556	198
680.95	566	210
681.00	575	222
681.05	585	235
681.10	1,365	248
681.15	1,383	287
681.20	1,401	327
681.25	1,419	368
681.30	1,437	409
681.35	1,452	443
681.40	**1,452**	**443**

Summary for Pond 5P: W biofillter UNLINED

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.218 ac, 64.67% Impervious, Inflow Depth > 2.83" for 10-Year event
Inflow = 0.79 cfs @ 12.15 hrs, Volume= 0.052 af
Outflow = 0.40 cfs @ 12.31 hrs, Volume= 0.045 af, Atten= 50%, Lag= 9.7 min
Discarded = 0.00 cfs @ 12.31 hrs, Volume= 0.001 af
Primary = 0.38 cfs @ 12.31 hrs, Volume= 0.044 af
Secondary = 0.01 cfs @ 12.30 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 676.16' @ 12.31 hrs Surf.Area= 3,140 sf Storage= 1,059 cf

Plug-Flow detention time= 171.4 min calculated for 0.045 af (87% of inflow)
Center-of-Mass det. time= 130.5 min (878.3 - 747.8)

Volume	Invert	Avail.Storage	Storage Description
#1	671.75'	107 cf	**8.30'W x 39.20'L x 1.00'H sand invert** 325 cf Overall x 33.0% Voids
#2	672.75'	176 cf	**8.30'W x 39.20'L x 2.00'H media** 651 cf Overall x 27.0% Voids
#3	674.75'	728 cf	**8.30'W x 39.20'L x 1.35'H top media Z=3.0**
#4	676.10'	43 cf	**18.00'W x 47.00'L x 0.05'H NDS drain Z=3.0**
#5	676.15'	8 cf	**18.00'W x 47.00'L x 0.01'H weir overflow Z=3.0**
		1,063 cf	Total Available Storage

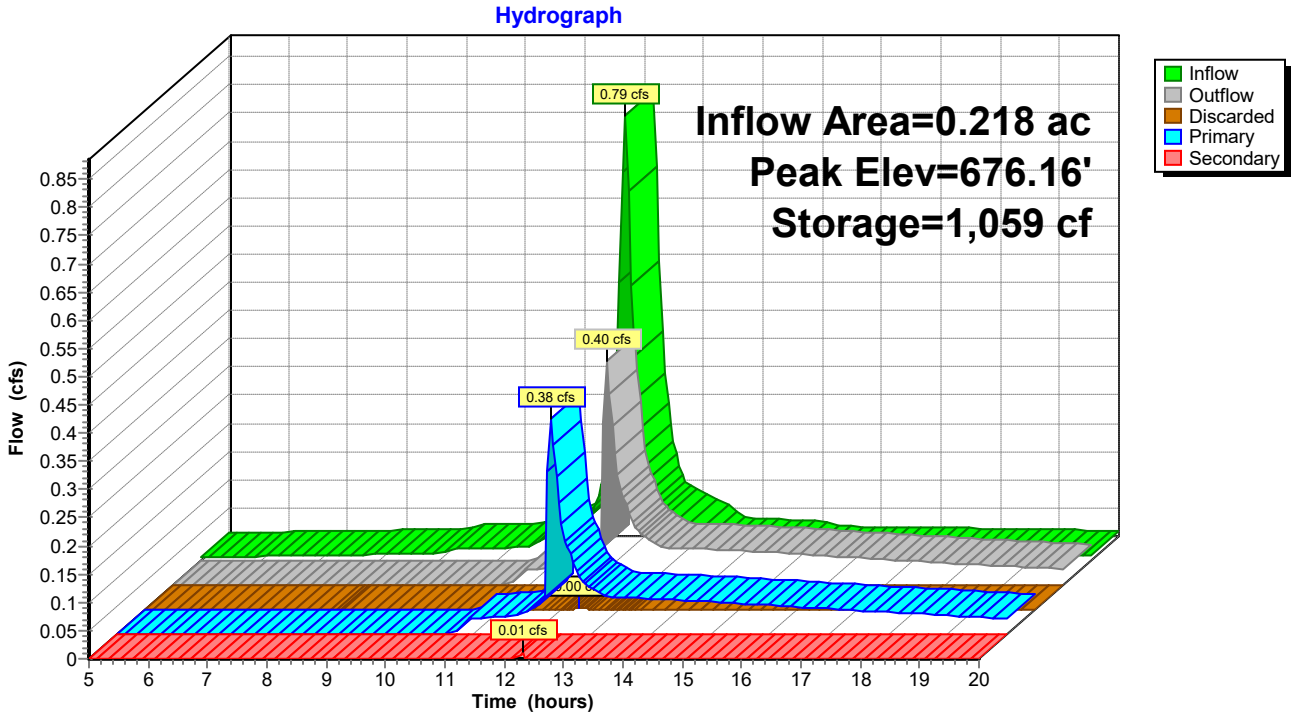
Device	Routing	Invert	Outlet Devices
#1	Secondary	676.15'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Primary	676.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	672.75'	**3.600 in/hr underdrain over Horizontal area above 672.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 651 sf Phase-In= 0.50'
#4	Discarded	671.75'	**0.030 in/hr Exfiltration over Horizontal area above 671.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 325 sf Phase-In= 0.50'

Discarded OutFlow Max=0.00 cfs @ 12.31 hrs HW=676.15' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

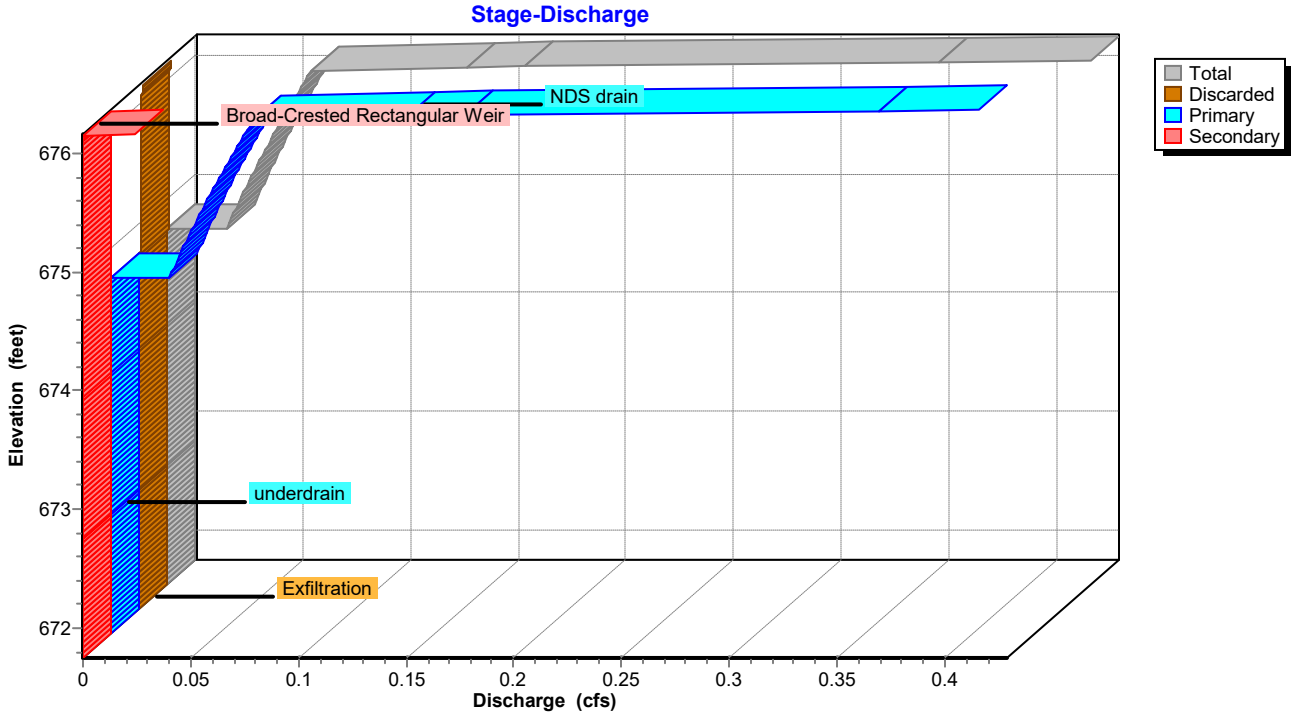
Primary OutFlow Max=0.37 cfs @ 12.31 hrs HW=676.15' (Free Discharge)
├**2=NDS drain** (Weir Controls 0.16 cfs @ 0.76 fps)
└**3=underdrain** (Controls 0.21 cfs)

Secondary OutFlow Max=0.01 cfs @ 12.30 hrs HW=676.16' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.18 fps)

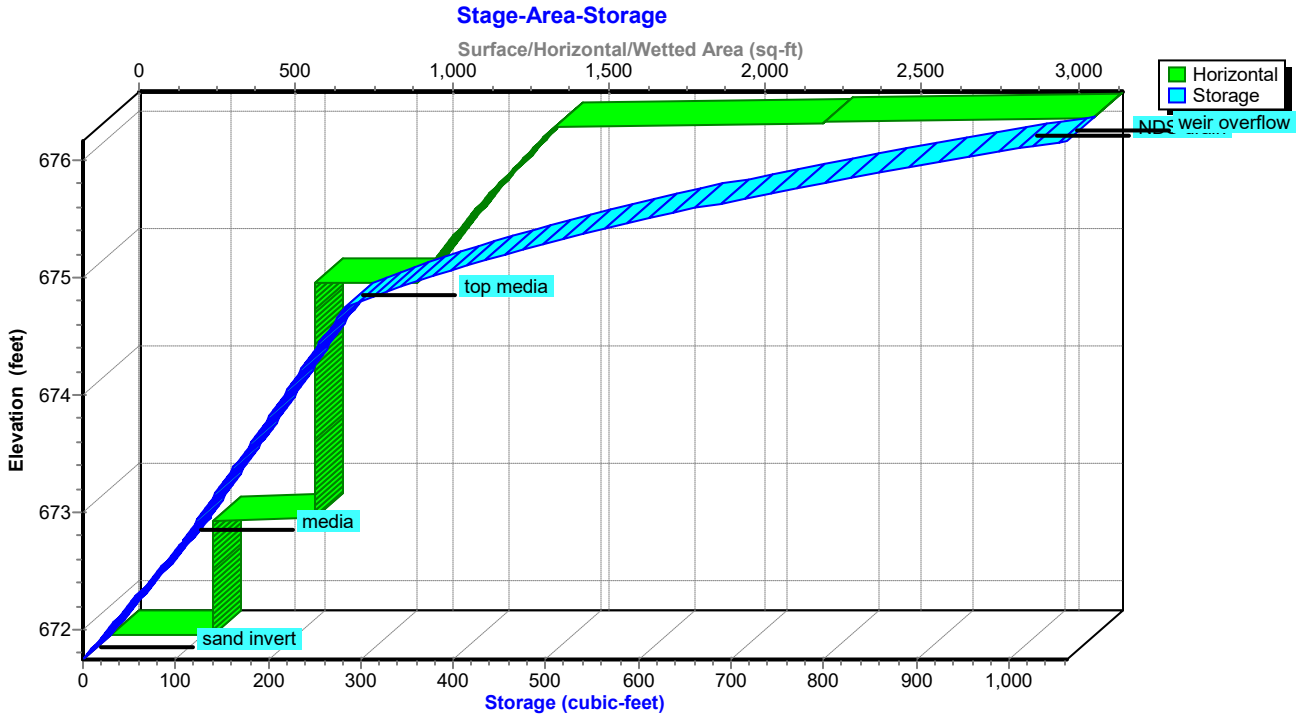
Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Hydrograph for Pond 5P: W biofillter UNLINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.01	1	671.76	0.00	0.00	0.00	0.00
5.50	0.01	12	671.86	0.00	0.00	0.00	0.00
6.00	0.01	26	671.99	0.00	0.00	0.00	0.00
6.50	0.01	41	672.13	0.00	0.00	0.00	0.00
7.00	0.01	57	672.28	0.00	0.00	0.00	0.00
7.50	0.01	75	672.45	0.00	0.00	0.00	0.00
8.00	0.01	95	672.63	0.00	0.00	0.00	0.00
8.50	0.01	115	672.84	0.00	0.00	0.00	0.00
9.00	0.01	137	673.09	0.00	0.00	0.00	0.00
9.50	0.02	170	673.47	0.00	0.00	0.00	0.00
10.00	0.02	209	673.91	0.00	0.00	0.00	0.00
10.50	0.02	251	674.39	0.00	0.00	0.00	0.00
11.00	0.05	296	674.79	0.03	0.00	0.03	0.00
11.50	0.07	350	674.94	0.03	0.00	0.03	0.00
12.00	**0.37**	**565**	**675.41**	**0.05**	**0.00**	**0.05**	**0.00**
12.50	**0.17**	**1,030**	**676.12**	**0.20**	**0.00**	**0.19**	**0.00**
13.00	0.08	994	676.08	0.08	0.00	0.08	0.00
13.50	0.05	982	676.06	0.07	0.00	0.07	0.00
14.00	0.03	928	675.99	0.06	0.00	0.06	0.00
14.50	0.03	870	675.91	0.06	0.00	0.06	0.00
15.00	0.03	813	675.83	0.06	0.00	0.06	0.00
15.50	0.02	747	675.72	0.06	0.00	0.05	0.00
16.00	0.02	681	675.62	0.05	0.00	0.05	0.00
16.50	0.02	619	675.51	0.05	0.00	0.05	0.00
17.00	0.01	562	675.41	0.05	0.00	0.04	0.00
17.50	0.01	509	675.30	0.04	0.00	0.04	0.00
18.00	0.01	459	675.20	0.04	0.00	0.04	0.00
18.50	0.01	414	675.10	0.04	0.00	0.04	0.00
19.00	0.01	372	675.00	0.03	0.00	0.03	0.00
19.50	0.01	334	674.90	0.03	0.00	0.03	0.00
20.00	0.01	298	674.80	0.03	0.00	0.03	0.00

Stage-Discharge for Pond 5P: W biofillter UNLINED

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
671.75	0.00	0.00	0.00	0.00
671.85	0.00	0.00	0.00	0.00
671.95	0.00	0.00	0.00	0.00
672.05	0.00	0.00	0.00	0.00
672.15	0.00	0.00	0.00	0.00
672.25	0.00	0.00	0.00	0.00
672.35	0.00	0.00	0.00	0.00
672.45	0.00	0.00	0.00	0.00
672.55	0.00	0.00	0.00	0.00
672.65	0.00	0.00	0.00	0.00
672.75	0.00	0.00	0.00	0.00
672.85	0.00	0.00	0.00	0.00
672.95	0.00	0.00	0.00	0.00
673.05	0.00	0.00	0.00	0.00
673.15	0.00	0.00	0.00	0.00
673.25	0.00	0.00	0.00	0.00
673.35	0.00	0.00	0.00	0.00
673.45	0.00	0.00	0.00	0.00
673.55	0.00	0.00	0.00	0.00
673.65	0.00	0.00	0.00	0.00
673.75	0.00	0.00	0.00	0.00
673.85	0.00	0.00	0.00	0.00
673.95	0.00	0.00	0.00	0.00
674.05	0.00	0.00	0.00	0.00
674.15	0.00	0.00	0.00	0.00
674.25	0.00	0.00	0.00	0.00
674.35	0.00	0.00	0.00	0.00
674.45	0.00	0.00	0.00	0.00
674.55	0.00	0.00	0.00	0.00
674.65	0.00	0.00	0.00	0.00
674.75	0.03	0.00	0.03	0.00
674.85	0.03	0.00	0.03	0.00
674.95	0.03	0.00	0.03	0.00
675.05	0.04	0.00	0.03	0.00
675.15	0.04	0.00	0.04	0.00
675.25	0.04	0.00	0.04	0.00
675.35	0.04	0.00	0.04	0.00
675.45	0.05	0.00	0.05	0.00
675.55	0.05	0.00	0.05	0.00
675.65	0.05	0.00	0.05	0.00
675.75	0.06	0.00	0.06	0.00
675.85	0.06	0.00	0.06	0.00
675.95	0.06	0.00	0.06	0.00
676.05	0.07	0.00	0.07	0.00
676.15	**0.36**	**0.00**	**0.36**	**0.00**

Stage-Area-Storage for Pond 5P: W biofillter UNLINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
671.75	325	0
671.80	325	5
671.85	325	11
671.90	325	16
671.95	325	21
672.00	325	27
672.05	325	32
672.10	325	38
672.15	325	43
672.20	325	48
672.25	325	54
672.30	325	59
672.35	325	64
672.40	325	70
672.45	325	75
672.50	325	81
672.55	325	86
672.60	325	91
672.65	325	97
672.70	325	102
672.75	651	107
672.80	651	112
672.85	651	116
672.90	651	121
672.95	651	125
673.00	651	129
673.05	651	134
673.10	651	138
673.15	651	143
673.20	651	147
673.25	651	151
673.30	651	156
673.35	651	160
673.40	651	164
673.45	651	169
673.50	651	173
673.55	651	178
673.60	651	182
673.65	651	186
673.70	651	191
673.75	651	195
673.80	651	200
673.85	651	204
673.90	651	208
673.95	651	213
674.00	651	217
674.05	651	222
674.10	651	226
674.15	651	230
674.20	651	235
674.25	651	239
674.30	651	244
674.35	651	248
674.40	651	252
674.45	651	257
674.50	651	261
674.55	651	265
674.60	651	270
674.65	651	274
674.70	651	279
674.75	976	283
674.80	990	300
674.85	1,005	317
674.90	1,020	335
674.95	1,035	354
675.00	1,050	373
675.05	1,065	394
675.10	1,080	415
675.15	1,096	437
675.20	1,112	459
675.25	1,128	483
675.30	1,144	507
675.35	1,160	532
675.40	1,177	558
675.45	1,193	585
675.50	1,210	612
675.55	1,227	641
675.60	1,244	670
675.65	1,262	700
675.70	1,279	731
675.75	1,297	763
675.80	1,315	796
675.85	1,333	829
675.90	1,351	864
675.95	1,370	899
676.00	1,389	936
676.05	1,407	973
676.10	2,272	1,012
676.15	**3,138**	**1,054**

Summary for Pond 7P: 48" UG storage

[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.326 ac, 63.36% Impervious, Inflow Depth > 2.47" for 10-Year event
Inflow = 0.50 cfs @ 12.30 hrs, Volume= 0.067 af
Outflow = 0.41 cfs @ 12.37 hrs, Volume= 0.067 af, Atten= 17%, Lag= 4.3 min
Primary = 0.41 cfs @ 12.37 hrs, Volume= 0.067 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 669.66' @ 12.37 hrs Surf.Area= 158 sf Storage= 85 cf

Plug-Flow detention time= 2.0 min calculated for 0.067 af (100% of inflow)
Center-of-Mass det. time= 1.7 min (844.1 - 842.5)

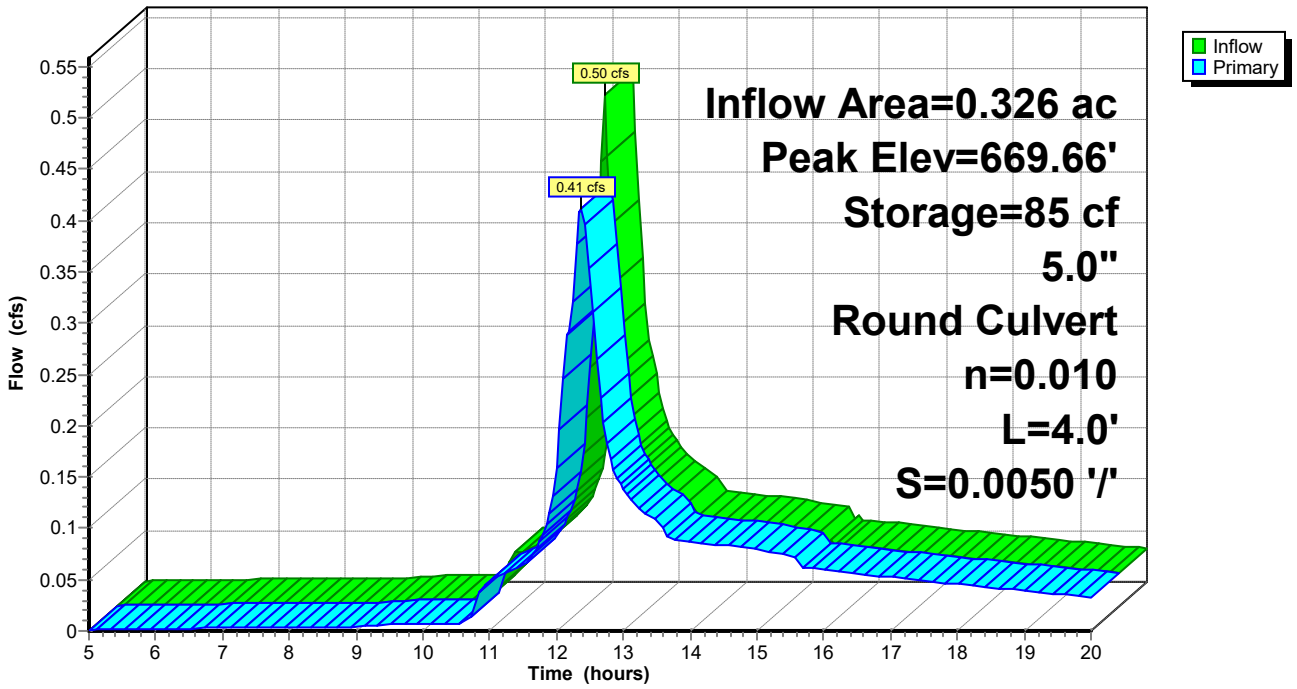
Volume	Invert	Avail.Storage	Storage Description
#1	668.82'	628 cf	**48.0" Round Pipe Storage** L= 50.0' S= 0.0026 '/'

Device	Routing	Invert	Outlet Devices
#1	Primary	668.82'	**5.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 668.82' / 668.80' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.14 sf

Primary OutFlow Max=0.41 cfs @ 12.37 hrs HW=669.65' (Free Discharge)
1=Culvert (Inlet Controls 0.41 cfs @ 2.99 fps)

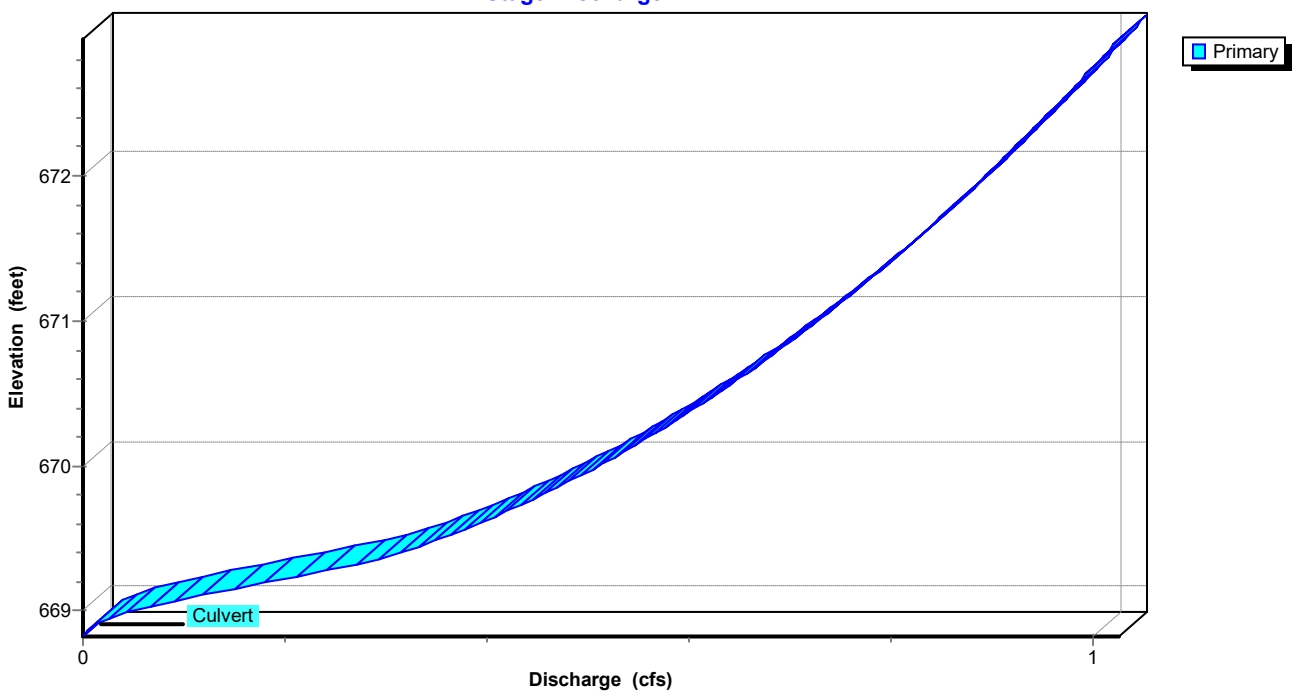
Pond 7P: 48" UG storage

Hydrograph

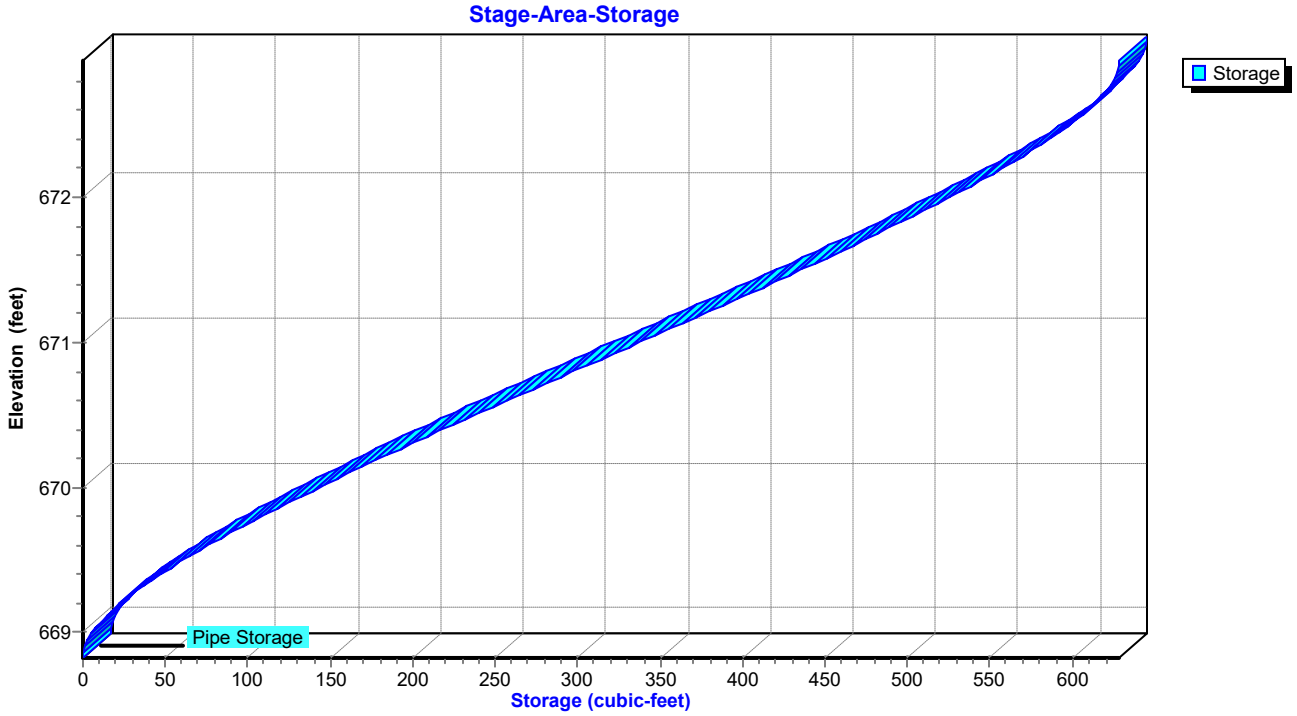


Pond 7P: 48" UG storage

Stage-Discharge



Pond 7P: 48" UG storage



Hydrograph for Pond 7P: 48" UG storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
5.00	0.00	0	668.82	0.00
5.50	0.00	0	668.85	0.00
6.00	0.00	0	668.85	0.00
6.50	0.00	0	668.85	0.00
7.00	0.00	0	668.86	0.00
7.50	0.00	0	668.86	0.00
8.00	0.00	0	668.86	0.00
8.50	0.00	0	668.86	0.00
9.00	0.00	0	668.86	0.00
9.50	0.01	0	668.87	0.01
10.00	0.01	0	668.88	0.01
10.50	0.01	0	668.88	0.01
11.00	0.05	5	669.00	0.05
11.50	0.07	7	669.02	0.06
12.00	**0.18**	**19**	**669.16**	**0.16**
12.50	**0.27**	**60**	**669.49**	**0.35**
13.00	0.13	16	669.13	0.14
13.50	0.11	13	669.09	0.11
14.00	0.09	10	669.06	0.09
14.50	0.08	9	669.05	0.08
15.00	0.08	9	669.05	0.08
15.50	0.07	8	669.04	0.07
16.00	0.06	6	669.01	0.06
16.50	0.06	6	669.01	0.06
17.00	0.05	5	669.00	0.05
17.50	0.05	5	668.99	0.05
18.00	0.05	5	668.99	0.05
18.50	0.04	4	668.98	0.04
19.00	0.04	4	668.97	0.04
19.50	0.04	3	668.97	0.04
20.00	0.03	3	668.96	0.03

Stage-Discharge for Pond 7P: 48" UG storage

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
668.82	0.00	671.37	0.79
668.87	0.00	671.42	0.80
668.92	0.02	671.47	0.81
668.97	0.04	671.52	0.82
669.02	0.06	671.57	0.83
669.07	0.09	671.62	0.83
669.12	0.13	671.67	0.84
669.17	0.16	671.72	0.85
669.22	0.20	671.77	0.86
669.27	0.24	671.82	0.87
669.32	0.27	671.87	0.87
669.37	0.30	671.92	0.88
669.42	0.32	671.97	0.89
669.47	0.34	672.02	0.90
669.52	0.36	672.07	0.90
669.57	0.38	672.12	0.91
669.62	0.40	672.17	0.92
669.67	0.42	672.22	0.93
669.72	0.43	672.27	0.93
669.77	0.45	672.32	0.94
669.82	0.46	672.37	0.95
669.87	0.48	672.42	0.95
669.92	0.49	672.47	0.96
669.97	0.50	672.52	0.97
670.02	0.52	672.57	0.98
670.07	0.53	672.62	0.98
670.12	0.54	672.67	0.99
670.17	0.55	672.72	1.00
670.22	0.57	672.77	1.00
670.27	0.58	672.82	1.01
670.32	0.59	672.87	1.02
670.37	0.60	672.92	**1.02**
670.42	0.61		
670.47	0.62		
670.52	0.63		
670.57	0.64		
670.62	0.65		
670.67	0.66		
670.72	0.67		
670.77	0.68		
670.82	0.69		
670.87	0.70		
670.92	0.71		
670.97	0.72		
671.02	0.73		
671.07	0.74		
671.12	0.75		
671.17	0.76		
671.22	0.77		
671.27	0.78		
671.32	0.78		

Stage-Area-Storage for Pond 7P: 48" UG storage

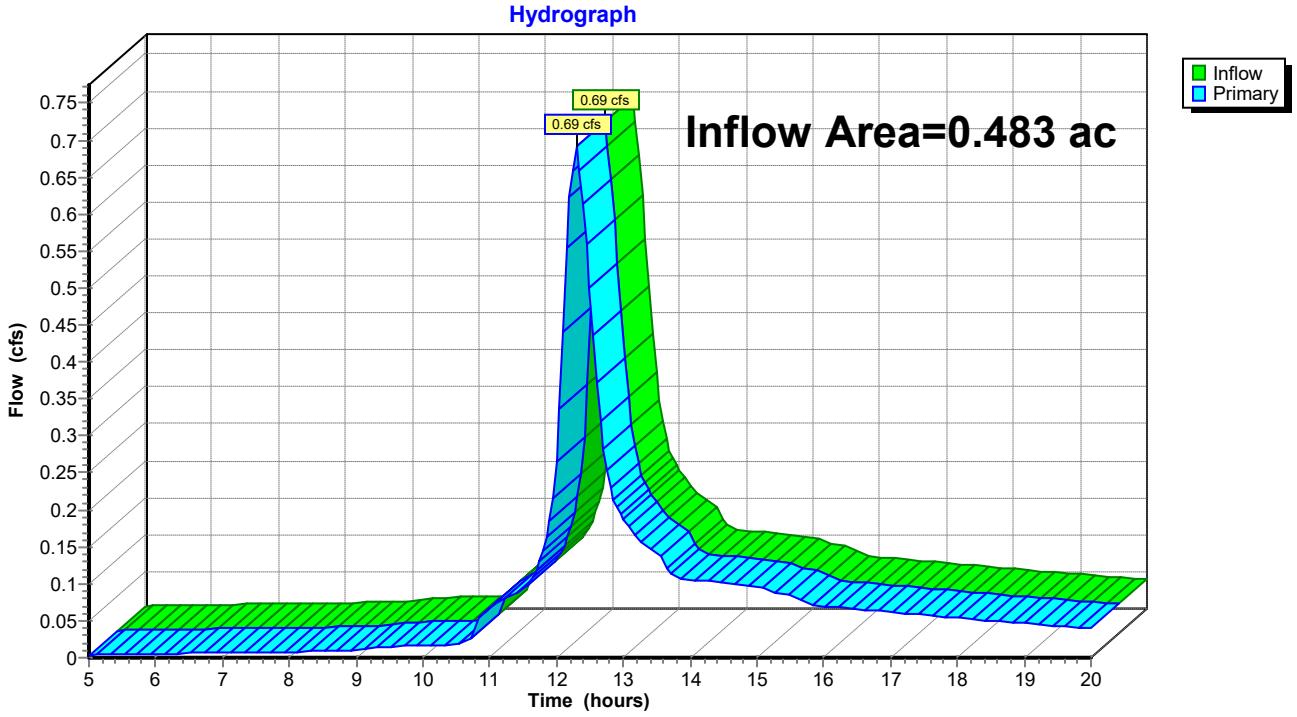
Elevation (feet)	Storage (cubic-feet)
668.82	0
668.87	0
668.92	1
668.97	4
669.02	7
669.07	11
669.12	15
669.17	20
669.22	25
669.27	31
669.32	37
669.37	43
669.42	50
669.47	57
669.52	64
669.57	72
669.62	79
669.67	87
669.72	95
669.77	103
669.82	112
669.87	120
669.92	129
669.97	138
670.02	147
670.07	156
670.12	165
670.17	174
670.22	184
670.27	193
670.32	203
670.37	212
670.42	222
670.47	232
670.52	242
670.57	251
670.62	261
670.67	271
670.72	281
670.77	291
670.82	301
670.87	311
670.92	321
670.97	331
671.02	341
671.07	351
671.12	361
671.17	371
671.22	381
671.27	391
671.32	400
671.37	410
671.42	420
671.47	429
671.52	439
671.57	448
671.62	458
671.67	467
671.72	476
671.77	485
671.82	494
671.87	503
671.92	511
671.97	520
672.02	528
672.07	536
672.12	544
672.17	552
672.22	560
672.27	567
672.32	574
672.37	581
672.42	587
672.47	594
672.52	600
672.57	605
672.62	610
672.67	615
672.72	619
672.77	623
672.82	626
672.87	628
672.92	**628**

Summary for Link 2L: frontage rd

Inflow Area = 0.483 ac, 55.51% Impervious, Inflow Depth > 2.34" for 10-Year event
Inflow = 0.69 cfs @ 12.30 hrs, Volume= 0.094 af
Primary = 0.69 cfs @ 12.30 hrs, Volume= 0.094 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: frontage rd



Hydrograph for Link 2L: frontage rd

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	17.75	0.06	0.00	0.06
5.25	0.00	0.00	0.00	18.00	0.05	0.00	0.05
5.50	0.00	0.00	0.00	18.25	0.05	0.00	0.05
5.75	0.01	0.00	0.01	18.50	0.05	0.00	0.05
6.00	0.01	0.00	0.01	18.75	0.05	0.00	0.05
6.25	0.01	0.00	0.01	19.00	0.05	0.00	0.05
6.50	0.01	0.00	0.01	19.25	0.04	0.00	0.04
6.75	0.01	0.00	0.01	19.50	0.04	0.00	0.04
7.00	0.01	0.00	0.01	19.75	0.04	0.00	0.04
7.25	0.01	0.00	0.01	20.00	0.04	0.00	0.04
7.50	0.01	0.00	0.01				
7.75	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.25	0.01	0.00	0.01				
8.50	0.01	0.00	0.01				
8.75	0.01	0.00	0.01				
9.00	0.01	0.00	0.01				
9.25	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
9.75	0.02	0.00	0.02				
10.00	0.02	0.00	0.02				
10.25	0.02	0.00	0.02				
10.50	0.02	0.00	0.02				
10.75	0.03	0.00	0.03				
11.00	0.07	0.00	0.07				
11.25	0.08	0.00	0.08				
11.50	0.09	0.00	0.09				
11.75	0.13	0.00	0.13				
12.00	0.26	0.00	0.26				
12.25	**0.66**	0.00	**0.66**				
12.50	**0.50**	0.00	**0.50**				
12.75	0.25	0.00	0.25				
13.00	0.19	0.00	0.19				
13.25	0.16	0.00	0.16				
13.50	0.14	0.00	0.14				
13.75	0.11	0.00	0.11				
14.00	0.11	0.00	0.11				
14.25	0.10	0.00	0.10				
14.50	0.10	0.00	0.10				
14.75	0.10	0.00	0.10				
15.00	0.10	0.00	0.10				
15.25	0.09	0.00	0.09				
15.50	0.08	0.00	0.08				
15.75	0.07	0.00	0.07				
16.00	0.07	0.00	0.07				
16.25	0.07	0.00	0.07				
16.50	0.07	0.00	0.07				
16.75	0.06	0.00	0.06				
17.00	0.06	0.00	0.06				
17.25	0.06	0.00	0.06				
17.50	0.06	0.00	0.06				

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: To E Biofilter Runoff Area=1,875 sf 57.33% Impervious Runoff Depth>5.00"
Flow Length=25' Tc=8.0 min CN=WQ Runoff=0.29 cfs 0.018 af

Subcatchment 3S: to curb inlet Runoff Area=5,020 sf 68.92% Impervious Runoff Depth>5.45"
Flow Length=150' Tc=10.0 min CN=WQ Runoff=0.78 cfs 0.052 af

Subcatchment 4S: to W biofilter Runoff Area=4,490 sf 59.91% Impervious Runoff Depth>5.10"
Flow Length=140' Tc=6.0 min CN=WQ Runoff=0.76 cfs 0.044 af

Subcatchment 5S: to NDS 13-14-15 Runoff Area=1,050 sf 0.00% Impervious Runoff Depth>2.75"
Flow Length=175' Tc=8.0 min CN=WQ Runoff=0.10 cfs 0.006 af

Subcatchment 6S: untreated Runoff Area=6,820 sf 39.15% Impervious Runoff Depth>4.28"
Flow Length=100' Tc=15.0 min CN=WQ Runoff=0.74 cfs 0.056 af

Subcatchment 7S: S 1/2 roof to 8" PVC Runoff Area=1,190 sf 100.00% Impervious Runoff Depth>6.66"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.26 cfs 0.015 af

Subcatchment 8S: NW 1/4 roof Runoff Area=595 sf 100.00% Impervious Runoff Depth>6.66"
Flow Length=25' Tc=5.0 min CN=98 Runoff=0.13 cfs 0.008 af

Reach 3R: S. 8" PVC Avg. Flow Depth=0.26' Max Vel=2.84 fps Inflow=0.35 cfs 0.021 af
8.0" Round Pipe n=0.010 L=87.0' S=0.0052 '/' Capacity=1.13 cfs Outflow=0.34 cfs 0.021 af

Reach 4R: W. 6" PVC Avg. Flow Depth=0.19' Max Vel=12.01 fps Inflow=0.84 cfs 0.119 af
6.0" Round Pipe n=0.010 L=77.0' S=0.1335 '/' Capacity=2.67 cfs Outflow=0.84 cfs 0.119 af

Pond 3P: E biofilter LINED Peak Elev=681.13' Storage=272 cf Inflow=0.29 cfs 0.018 af
Primary=0.18 cfs 0.017 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.017 af

Pond 5P: W biofillter UNLINED Peak Elev=676.26' Storage=1,063 cf Inflow=1.50 cfs 0.096 af
Discarded=0.00 cfs 0.001 af Primary=0.87 cfs 0.074 af Secondary=0.87 cfs 0.011 af Outflow=1.73 cfs 0.085 af

Pond 7P: 48" UG storage Peak Elev=671.64' Storage=462 cf Inflow=1.34 cfs 0.119 af
5.0" Round Culvert n=0.010 L=4.0' S=0.0050 '/' Outflow=0.84 cfs 0.119 af

Link 2L: frontage rd Inflow=2.28 cfs 0.185 af
Primary=2.28 cfs 0.185 af

Total Runoff Area = 0.483 ac Runoff Volume = 0.198 af Average Runoff Depth = 4.92"
44.49% Pervious = 0.215 ac 55.51% Impervious = 0.268 ac

Summary for Subcatchment 1S: To E Biofilter

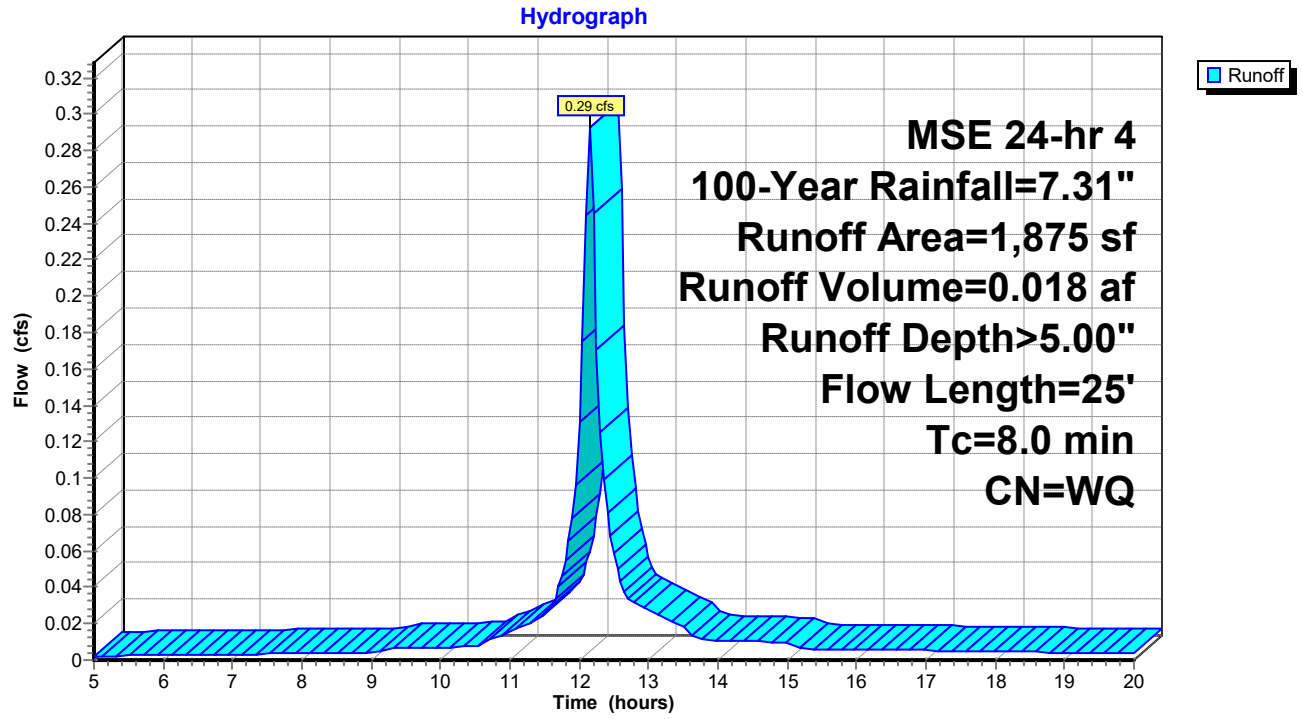
Runoff = 0.29 cfs @ 12.15 hrs, Volume= 0.018 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	800	61	lawn, HSG B, good
*	645	98	NE 1/4 roof
*	210	100	bio media
*	220	98	retain wall
	1,875		Weighted Average
	800		42.67% Pervious Area
	1,075		57.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	25		0.05		**Direct Entry, lawn above wall to E bio**

Subcatchment 1S: To E Biofilter



Hydrograph for Subcatchment 1S: To E Biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.00
5.25	0.36	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.45	0.00	0.00
6.25	0.48	0.00	0.00
6.50	0.51	0.00	0.00
6.75	0.55	0.00	0.00
7.00	0.58	0.01	0.00
7.25	0.61	0.01	0.00
7.50	0.65	0.02	0.00
7.75	0.69	0.03	0.00
8.00	0.72	0.03	0.00
8.25	0.76	0.04	0.00
8.50	0.80	0.05	0.00
8.75	0.84	0.06	0.00
9.00	0.88	0.08	0.00
9.25	0.95	0.10	0.01
9.50	1.02	0.12	0.01
9.75	1.09	0.15	0.01
10.00	1.16	0.18	0.01
10.25	1.23	0.21	0.01
10.50	1.31	0.25	0.01
10.75	1.43	0.31	0.01
11.00	1.58	0.39	0.02
11.25	1.77	0.50	0.02
11.50	1.98	0.64	0.02
11.75	2.40	0.92	0.05
12.00	3.43	1.72	**0.13**
12.25	4.91	3.00	**0.17**
12.50	5.33	3.37	0.06
12.75	5.54	3.57	0.03
13.00	5.73	3.74	0.03
13.25	5.88	3.88	0.02
13.50	6.00	3.99	0.02
13.75	6.08	4.06	0.01
14.00	6.15	4.13	0.01
14.25	6.22	4.19	0.01
14.50	6.29	4.26	0.01
14.75	6.36	4.32	0.01
15.00	6.43	4.38	0.01
15.25	6.47	4.42	0.01
15.50	6.51	4.46	0.01
15.75	6.55	4.49	0.01
16.00	6.59	4.53	0.01
16.25	6.62	4.56	0.01
16.50	6.66	4.60	0.01
16.75	6.70	4.63	0.01
17.00	6.73	4.66	0.01
17.25	6.76	4.70	0.01
17.50	6.80	4.73	0.01
17.75	6.83	4.76	0.00
18.00	6.86	4.79	0.00
18.25	6.89	4.81	0.00
18.50	6.92	4.84	0.00
18.75	6.95	4.87	0.00
19.00	6.97	4.89	0.00
19.25	7.00	4.92	0.00
19.50	7.03	4.94	0.00
19.75	7.05	4.96	0.00
20.00	**7.07**	**4.98**	0.00

Summary for Subcatchment 3S: to curb inlet

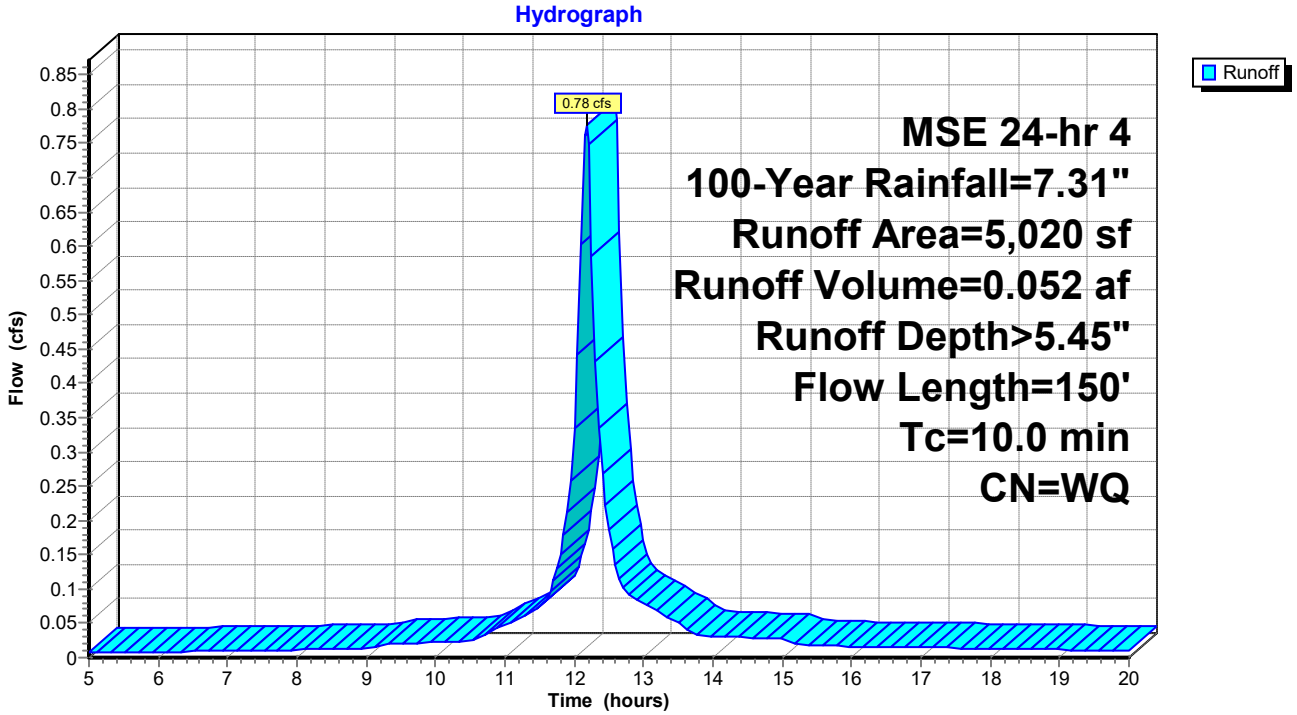
Runoff = 0.78 cfs @ 12.17 hrs, Volume= 0.052 af, Depth> 5.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	3,200	98	S part parking lot
*	160	98	SW
*	780	61	lawn, HSG B, good
*	780	61	lawn above wall
*	100	98	retain wall
	5,020		Weighted Average
	1,560		31.08% Pervious Area
	3,460		68.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	150		0.25		**Direct Entry, LAXVC lawn via AC pavement**

Subcatchment 3S: to curb inlet



Hydrograph for Subcatchment 3S: to curb inlet

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.01
5.25	0.36	0.00	0.01
5.50	0.39	0.01	0.01
5.75	0.42	0.01	0.01
6.00	0.45	0.01	0.01
6.25	0.48	0.02	0.01
6.50	0.51	0.03	0.01
6.75	0.55	0.03	0.01
7.00	0.58	0.04	0.01
7.25	0.61	0.05	0.01
7.50	0.65	0.07	0.01
7.75	0.69	0.08	0.01
8.00	0.72	0.09	0.01
8.25	0.76	0.11	0.01
8.50	0.80	0.13	0.01
8.75	0.84	0.15	0.01
9.00	0.88	0.17	0.01
9.25	0.95	0.20	0.02
9.50	1.02	0.23	0.02
9.75	1.09	0.27	0.02
10.00	1.16	0.31	0.02
10.25	1.23	0.36	0.02
10.50	1.31	0.41	0.02
10.75	1.43	0.49	0.04
11.00	1.58	0.59	0.05
11.25	1.77	0.73	0.06
11.50	1.98	0.89	0.07
11.75	2.40	1.22	0.13
12.00	3.43	2.12	**0.33**
12.25	4.91	3.49	**0.59**
12.50	5.33	3.87	0.19
12.75	5.54	4.08	0.10
13.00	5.73	4.26	0.08
13.25	5.88	4.40	0.07
13.50	6.00	4.52	0.05
13.75	6.08	4.59	0.03
14.00	6.15	4.66	0.03
14.25	6.22	4.73	0.03
14.50	6.29	4.80	0.03
14.75	6.36	4.86	0.03
15.00	6.43	4.93	0.03
15.25	6.47	4.97	0.02
15.50	6.51	5.00	0.02
15.75	6.55	5.04	0.02
16.00	6.59	5.08	0.02
16.25	6.62	5.12	0.02
16.50	6.66	5.15	0.02
16.75	6.70	5.19	0.02
17.00	6.73	5.22	0.01
17.25	6.76	5.25	0.01
17.50	6.80	5.28	0.01
17.75	6.83	5.31	0.01
18.00	6.86	5.34	0.01
18.25	6.89	5.37	0.01
18.50	6.92	5.40	0.01
18.75	6.95	5.43	0.01
19.00	6.97	5.45	0.01
19.25	7.00	5.48	0.01
19.50	7.03	5.50	0.01
19.75	7.05	5.53	0.01
20.00	**7.07**	**5.55**	0.01

Summary for Subcatchment 4S: to W biofilter

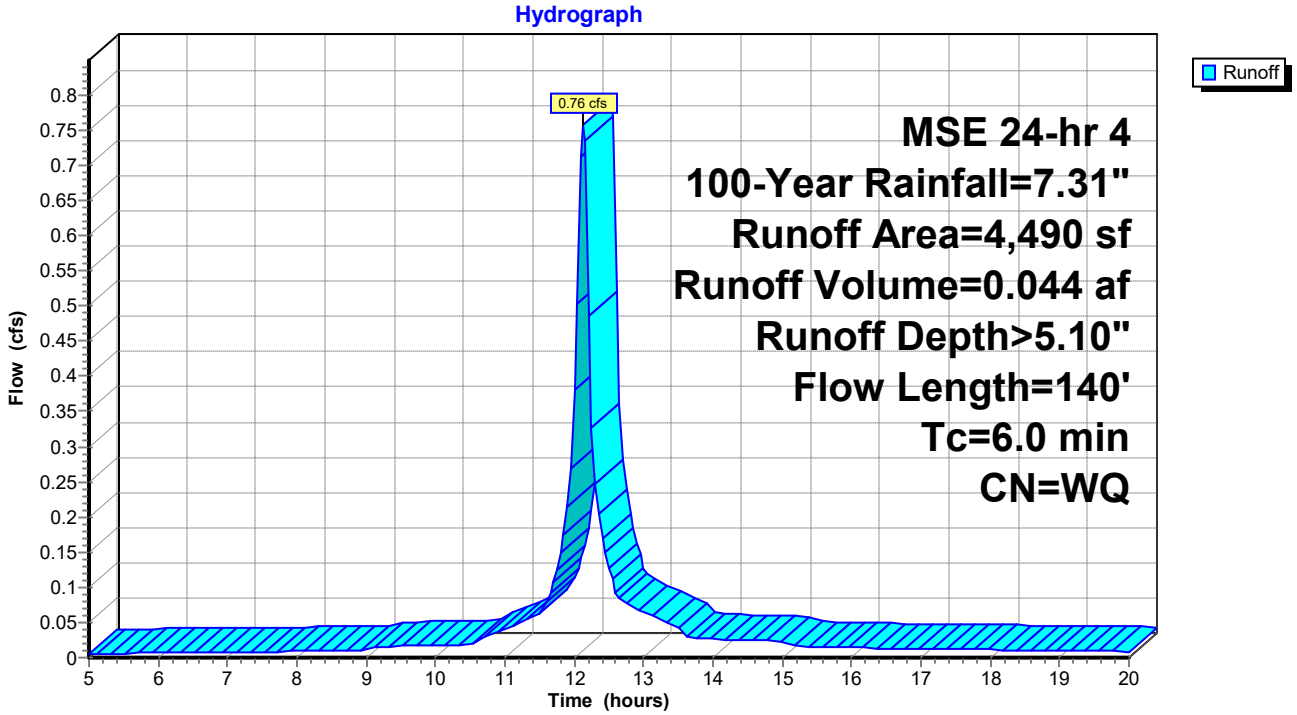
Runoff = 0.76 cfs @ 12.13 hrs, Volume= 0.044 af, Depth> 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	2,000	98	N part driveway
*	230	98	N part parking lot
*	1,600	61	lawn, HSG B, good
*	460	100	bio media
*	200	61	landscape
	4,490		Weighted Average
	1,800		40.09% Pervious Area
	2,690		59.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	140		0.39		**Direct Entry, lawn via parking**

Subcatchment 4S: to W biofilter



Hydrograph for Subcatchment 4S: to W biofilter

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.01
5.25	0.36	0.00	0.01
5.50	0.39	0.00	0.01
5.75	0.42	0.00	0.01
6.00	0.45	0.00	0.01
6.25	0.48	0.00	0.01
6.50	0.51	0.00	0.01
6.75	0.55	0.01	0.01
7.00	0.58	0.01	0.01
7.25	0.61	0.02	0.01
7.50	0.65	0.03	0.01
7.75	0.69	0.03	0.01
8.00	0.72	0.04	0.01
8.25	0.76	0.05	0.01
8.50	0.80	0.06	0.01
8.75	0.84	0.08	0.01
9.00	0.88	0.09	0.01
9.25	0.95	0.11	0.02
9.50	1.02	0.14	0.02
9.75	1.09	0.17	0.02
10.00	1.16	0.20	0.02
10.25	1.23	0.24	0.02
10.50	1.31	0.27	0.02
10.75	1.43	0.34	0.03
11.00	1.58	0.43	0.04
11.25	1.77	0.54	0.05
11.50	1.98	0.68	0.06
11.75	2.40	0.98	0.12
12.00	3.43	1.80	**0.38**
12.25	4.91	3.10	**0.33**
12.50	5.33	3.47	0.13
12.75	5.54	3.67	0.08
13.00	5.73	3.84	0.06
13.25	5.88	3.98	0.05
13.50	6.00	4.09	0.04
13.75	6.08	4.16	0.03
14.00	6.15	4.23	0.03
14.25	6.22	4.30	0.03
14.50	6.29	4.36	0.03
14.75	6.36	4.43	0.02
15.00	6.43	4.49	0.02
15.25	6.47	4.53	0.02
15.50	6.51	4.56	0.01
15.75	6.55	4.60	0.01
16.00	6.59	4.64	0.01
16.25	6.62	4.67	0.01
16.50	6.66	4.71	0.01
16.75	6.70	4.74	0.01
17.00	6.73	4.77	0.01
17.25	6.76	4.81	0.01
17.50	6.80	4.84	0.01
17.75	6.83	4.87	0.01
18.00	6.86	4.90	0.01
18.25	6.89	4.92	0.01
18.50	6.92	4.95	0.01
18.75	6.95	4.98	0.01
19.00	6.97	5.00	0.01
19.25	7.00	5.03	0.01
19.50	7.03	5.05	0.01
19.75	7.05	5.07	0.01
20.00	**7.07**	**5.10**	0.01

Summary for Subcatchment 5S: to NDS 13-14-15

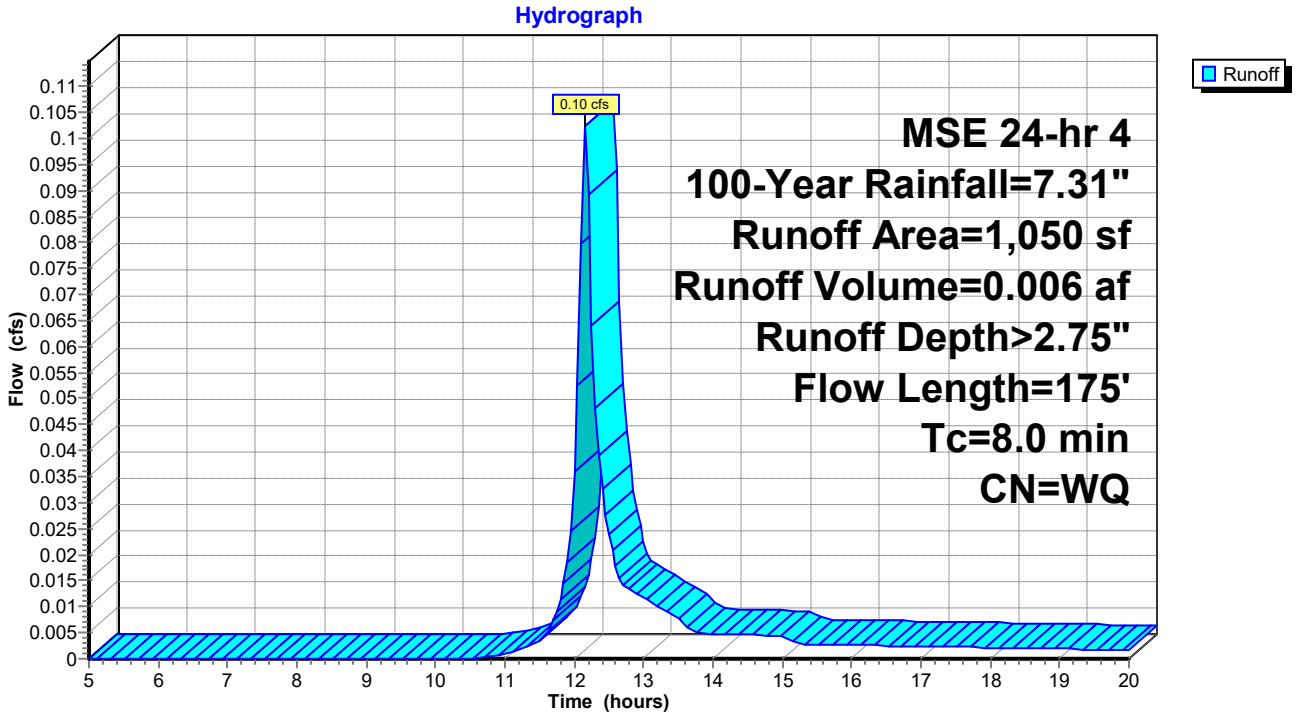
Runoff = 0.10 cfs @ 12.16 hrs, Volume= 0.006 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	550	61	NDS 14-15 lawn berm, HSG B, good
*	500	61	NDS 13 lawn
	1,050		Weighted Average
	1,050		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	175		0.36		**Direct Entry, lawn berm**

Subcatchment 5S: to NDS 13-14-15



Hydrograph for Subcatchment 5S: to NDS 13-14-15

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.00
5.25	0.36	0.00	0.00
5.50	0.39	0.00	0.00
5.75	0.42	0.00	0.00
6.00	0.45	0.00	0.00
6.25	0.48	0.00	0.00
6.50	0.51	0.00	0.00
6.75	0.55	0.00	0.00
7.00	0.58	0.00	0.00
7.25	0.61	0.00	0.00
7.50	0.65	0.00	0.00
7.75	0.69	0.00	0.00
8.00	0.72	0.00	0.00
8.25	0.76	0.00	0.00
8.50	0.80	0.00	0.00
8.75	0.84	0.00	0.00
9.00	0.88	0.00	0.00
9.25	0.95	0.00	0.00
9.50	1.02	0.00	0.00
9.75	1.09	0.00	0.00
10.00	1.16	0.00	0.00
10.25	1.23	0.00	0.00
10.50	1.31	0.00	0.00
10.75	1.43	0.00	0.00
11.00	1.58	0.01	0.00
11.25	1.77	0.03	0.00
11.50	1.98	0.07	0.00
11.75	2.40	0.17	0.01
12.00	3.43	0.54	**0.04**
12.25	4.91	1.32	**0.06**
12.50	5.33	1.57	0.02
12.75	5.54	1.71	0.01
13.00	5.73	1.83	0.01
13.25	5.88	1.93	0.01
13.50	6.00	2.01	0.01
13.75	6.08	2.06	0.01
14.00	6.15	2.11	0.00
14.25	6.22	2.16	0.00
14.50	6.29	2.20	0.00
14.75	6.36	2.25	0.00
15.00	6.43	2.30	0.00
15.25	6.47	2.32	0.00
15.50	6.51	2.35	0.00
15.75	6.55	2.38	0.00
16.00	6.59	2.41	0.00
16.25	6.62	2.43	0.00
16.50	6.66	2.46	0.00
16.75	6.70	2.48	0.00
17.00	6.73	2.51	0.00
17.25	6.76	2.53	0.00
17.50	6.80	2.56	0.00
17.75	6.83	2.58	0.00
18.00	6.86	2.60	0.00
18.25	6.89	2.62	0.00
18.50	6.92	2.64	0.00
18.75	6.95	2.66	0.00
19.00	6.97	2.68	0.00
19.25	7.00	2.70	0.00
19.50	7.03	2.72	0.00
19.75	7.05	2.74	0.00
20.00	**7.07**	**2.75**	0.00

Summary for Subcatchment 6S: untreated

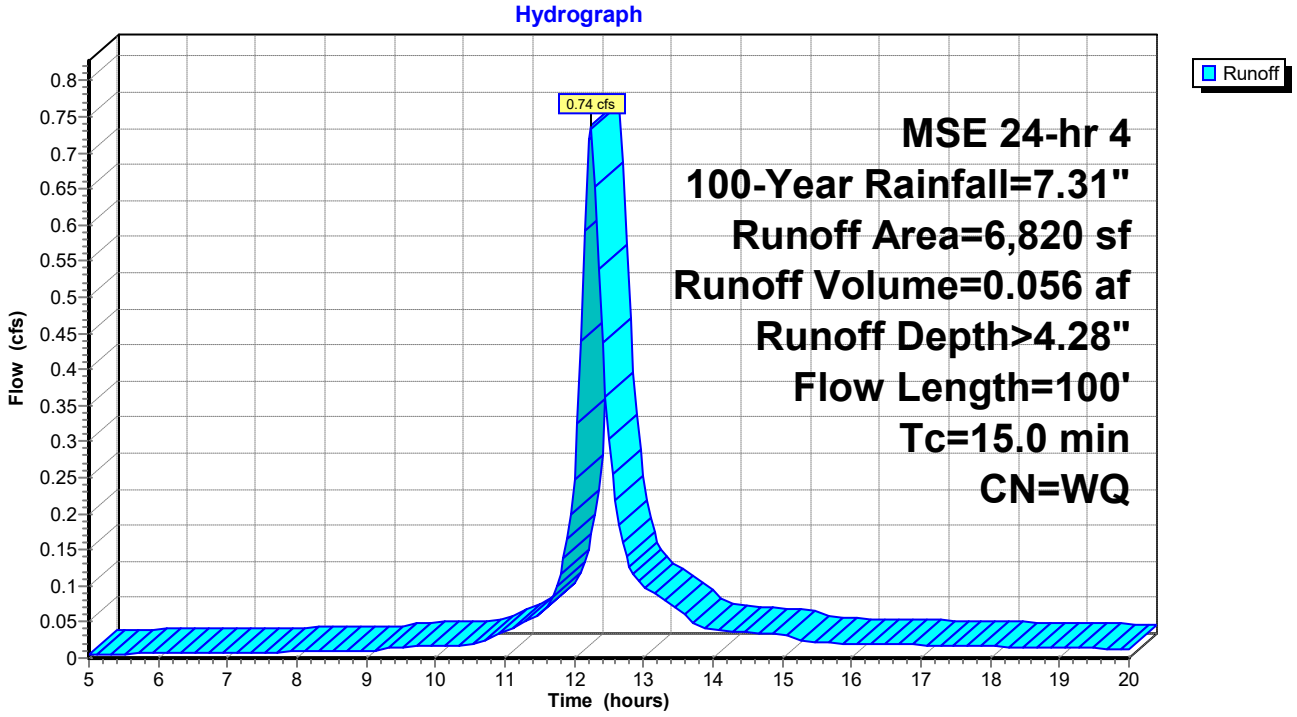
Runoff = 0.74 cfs @ 12.23 hrs, Volume= 0.056 af, Depth> 4.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	2,400	98	S driveway
*	3,400	61	lawn, HSG B, good
*	750	61	bark mulch landscape
*	270	98	retain wall
	6,820		Weighted Average
	4,150		60.85% Pervious Area
	2,670		39.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0	100		0.11		**Direct Entry, landscape to street**

Subcatchment 6S: untreated



Hydrograph for Subcatchment 6S: untreated

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.01
5.25	0.36	0.00	0.01
5.50	0.39	0.00	0.01
5.75	0.42	0.00	0.01
6.00	0.45	0.00	0.01
6.25	0.48	0.00	0.01
6.50	0.51	0.00	0.01
6.75	0.55	0.00	0.01
7.00	0.58	0.00	0.01
7.25	0.61	0.00	0.01
7.50	0.65	0.00	0.01
7.75	0.69	0.00	0.01
8.00	0.72	0.00	0.01
8.25	0.76	0.00	0.01
8.50	0.80	0.01	0.01
8.75	0.84	0.01	0.01
9.00	0.88	0.01	0.01
9.25	0.95	0.02	0.01
9.50	1.02	0.03	0.02
9.75	1.09	0.05	0.02
10.00	1.16	0.06	0.02
10.25	1.23	0.08	0.02
10.50	1.31	0.10	0.02
10.75	1.43	0.14	0.03
11.00	1.58	0.20	0.04
11.25	1.77	0.27	0.05
11.50	1.98	0.37	0.06
11.75	2.40	0.59	0.10
12.00	3.43	1.25	0.25
12.25	4.91	2.38	**0.73**
12.50	5.33	2.72	0.30
12.75	5.54	2.90	0.14
13.00	5.73	3.05	0.10
13.25	5.88	3.18	0.08
13.50	6.00	3.28	0.07
13.75	6.08	3.35	0.05
14.00	6.15	3.41	0.04
14.25	6.22	3.47	0.04
14.50	6.29	3.53	0.04
14.75	6.36	3.59	0.03
15.00	6.43	3.65	0.03
15.25	6.47	3.68	0.03
15.50	6.51	3.72	0.02
15.75	6.55	3.75	0.02
16.00	6.59	3.79	0.02
16.25	6.62	3.82	0.02
16.50	6.66	3.85	0.02
16.75	6.70	3.88	0.02
17.00	6.73	3.91	0.02
17.25	6.76	3.94	0.02
17.50	6.80	3.97	0.02
17.75	6.83	4.00	0.02
18.00	6.86	4.03	0.02
18.25	6.89	4.05	0.02
18.50	6.92	4.08	0.02
18.75	6.95	4.10	0.01
19.00	6.97	4.13	0.01
19.25	7.00	4.15	0.01
19.50	7.03	4.17	0.01
19.75	7.05	4.19	0.01
20.00	**7.07**	**4.21**	0.01

Summary for Subcatchment 7S: S 1/2 roof to 8" PVC

[49] Hint: Tc<2dt may require smaller dt

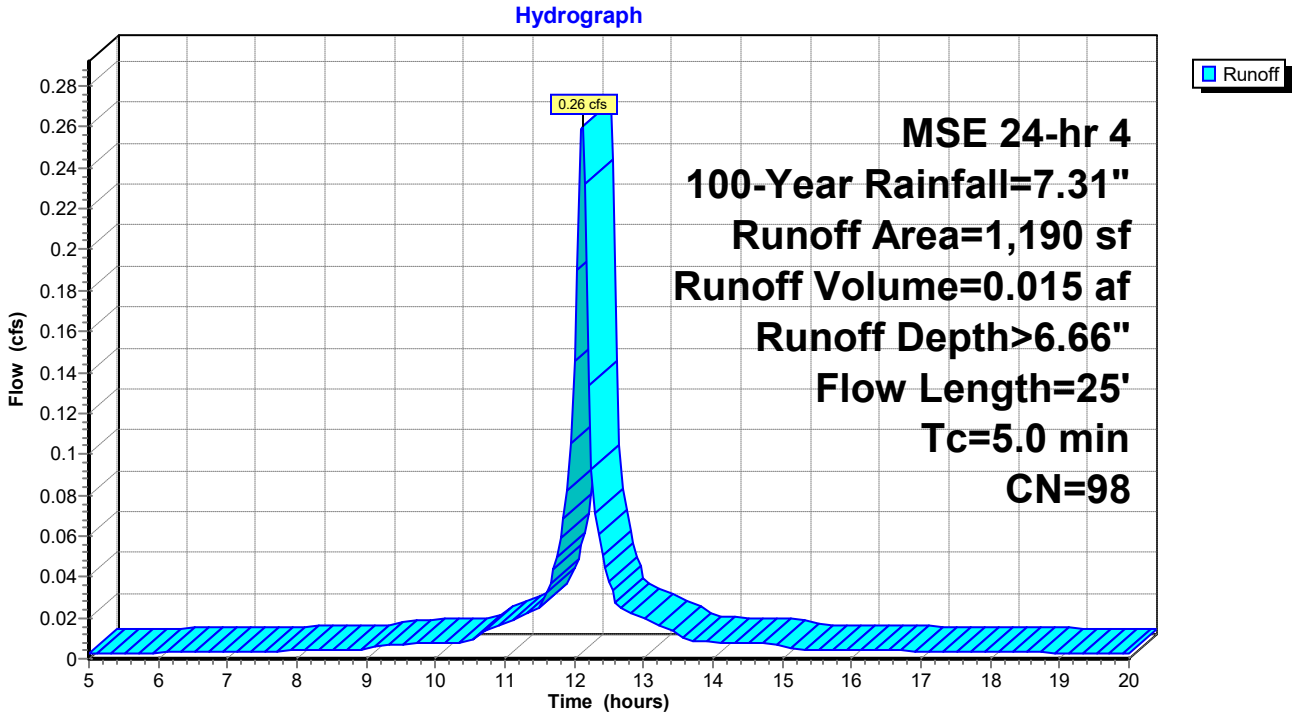
Runoff = 0.26 cfs @ 12.11 hrs, Volume= 0.015 af, Depth> 6.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	1,190	98	1/2 roof
	1,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, S 1/2 roof**

Subcatchment 7S: S 1/2 roof to 8" PVC



Hydrograph for Subcatchment 7S: S 1/2 roof to 8" PVC

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.17	0.00
5.25	0.36	0.20	0.00
5.50	0.39	0.22	0.00
5.75	0.42	0.25	0.00
6.00	0.45	0.27	0.00
6.25	0.48	0.30	0.00
6.50	0.51	0.33	0.00
6.75	0.55	0.36	0.00
7.00	0.58	0.39	0.00
7.25	0.61	0.42	0.00
7.50	0.65	0.46	0.00
7.75	0.69	0.49	0.00
8.00	0.72	0.53	0.00
8.25	0.76	0.56	0.00
8.50	0.80	0.60	0.00
8.75	0.84	0.64	0.00
9.00	0.88	0.68	0.00
9.25	0.95	0.74	0.01
9.50	1.02	0.81	0.01
9.75	1.09	0.87	0.01
10.00	1.16	0.94	0.01
10.25	1.23	1.02	0.01
10.50	1.31	1.09	0.01
10.75	1.43	1.21	0.01
11.00	1.58	1.36	0.02
11.25	1.77	1.54	0.02
11.50	1.98	1.76	0.02
11.75	2.40	2.17	0.05
12.00	3.43	3.19	**0.15**
12.25	4.91	4.68	**0.09**
12.50	5.33	5.09	0.04
12.75	5.54	5.31	0.02
13.00	5.73	5.49	0.02
13.25	5.88	5.64	0.02
13.50	6.00	5.76	0.01
13.75	6.08	5.84	0.01
14.00	6.15	5.91	0.01
14.25	6.22	5.99	0.01
14.50	6.29	6.05	0.01
14.75	6.36	6.12	0.01
15.00	6.43	6.19	0.01
15.25	6.47	6.23	0.00
15.50	6.51	6.27	0.00
15.75	6.55	6.31	0.00
16.00	6.59	6.35	0.00
16.25	6.62	6.38	0.00
16.50	6.66	6.42	0.00
16.75	6.70	6.46	0.00
17.00	6.73	6.49	0.00
17.25	6.76	6.53	0.00
17.50	6.80	6.56	0.00
17.75	6.83	6.59	0.00
18.00	6.86	6.62	0.00
18.25	6.89	6.65	0.00
18.50	6.92	6.68	0.00
18.75	6.95	6.71	0.00
19.00	6.97	6.74	0.00
19.25	7.00	6.76	0.00
19.50	7.03	6.79	0.00
19.75	7.05	6.81	0.00
20.00	**7.07**	**6.83**	0.00

Summary for Subcatchment 8S: NW 1/4 roof

[49] Hint: Tc<2dt may require smaller dt

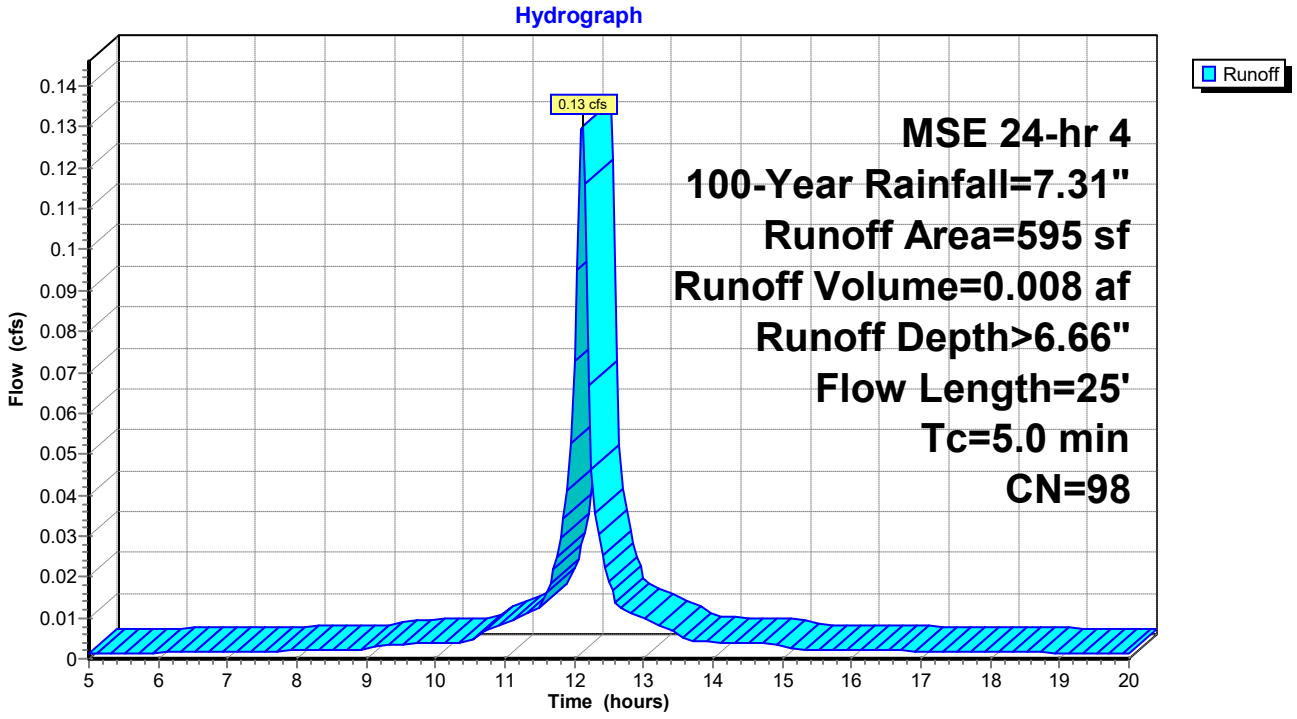
Runoff = 0.13 cfs @ 12.11 hrs, Volume= 0.008 af, Depth> 6.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	595	98	NW 1/4 roof
	595		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	25		0.08		**Direct Entry, NW 1/4 roof**

Subcatchment 8S: NW 1/4 roof



Hydrograph for Subcatchment 8S: NW 1/4 roof

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.17	0.00
5.25	0.36	0.20	0.00
5.50	0.39	0.22	0.00
5.75	0.42	0.25	0.00
6.00	0.45	0.27	0.00
6.25	0.48	0.30	0.00
6.50	0.51	0.33	0.00
6.75	0.55	0.36	0.00
7.00	0.58	0.39	0.00
7.25	0.61	0.42	0.00
7.50	0.65	0.46	0.00
7.75	0.69	0.49	0.00
8.00	0.72	0.53	0.00
8.25	0.76	0.56	0.00
8.50	0.80	0.60	0.00
8.75	0.84	0.64	0.00
9.00	0.88	0.68	0.00
9.25	0.95	0.74	0.00
9.50	1.02	0.81	0.00
9.75	1.09	0.87	0.00
10.00	1.16	0.94	0.00
10.25	1.23	1.02	0.00
10.50	1.31	1.09	0.00
10.75	1.43	1.21	0.01
11.00	1.58	1.36	0.01
11.25	1.77	1.54	0.01
11.50	1.98	1.76	0.01
11.75	2.40	2.17	0.02
12.00	3.43	3.19	**0.07**
12.25	4.91	4.68	**0.05**
12.50	5.33	5.09	0.02
12.75	5.54	5.31	0.01
13.00	5.73	5.49	0.01
13.25	5.88	5.64	0.01
13.50	6.00	5.76	0.01
13.75	6.08	5.84	0.00
14.00	6.15	5.91	0.00
14.25	6.22	5.99	0.00
14.50	6.29	6.05	0.00
14.75	6.36	6.12	0.00
15.00	6.43	6.19	0.00
15.25	6.47	6.23	0.00
15.50	6.51	6.27	0.00
15.75	6.55	6.31	0.00
16.00	6.59	6.35	0.00
16.25	6.62	6.38	0.00
16.50	6.66	6.42	0.00
16.75	6.70	6.46	0.00
17.00	6.73	6.49	0.00
17.25	6.76	6.53	0.00
17.50	6.80	6.56	0.00
17.75	6.83	6.59	0.00
18.00	6.86	6.62	0.00
18.25	6.89	6.65	0.00
18.50	6.92	6.68	0.00
18.75	6.95	6.71	0.00
19.00	6.97	6.74	0.00
19.25	7.00	6.76	0.00
19.50	7.03	6.79	0.00
19.75	7.05	6.81	0.00
20.00	**7.07**	**6.83**	0.00

Summary for Reach 3R: S. 8" PVC

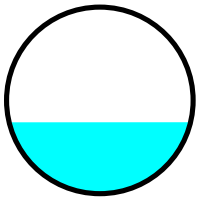
[52] Hint: Inlet/Outlet conditions not evaluated
[82] Warning: Early inflow requires earlier time span

Inflow Area = 0.051 ac, 53.13% Impervious, Inflow Depth > 4.83" for 100-Year event
Inflow = 0.35 cfs @ 12.12 hrs, Volume= 0.021 af
Outflow = 0.34 cfs @ 12.14 hrs, Volume= 0.021 af, Atten= 2%, Lag= 1.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.84 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.99 fps, Avg. Travel Time= 1.5 min

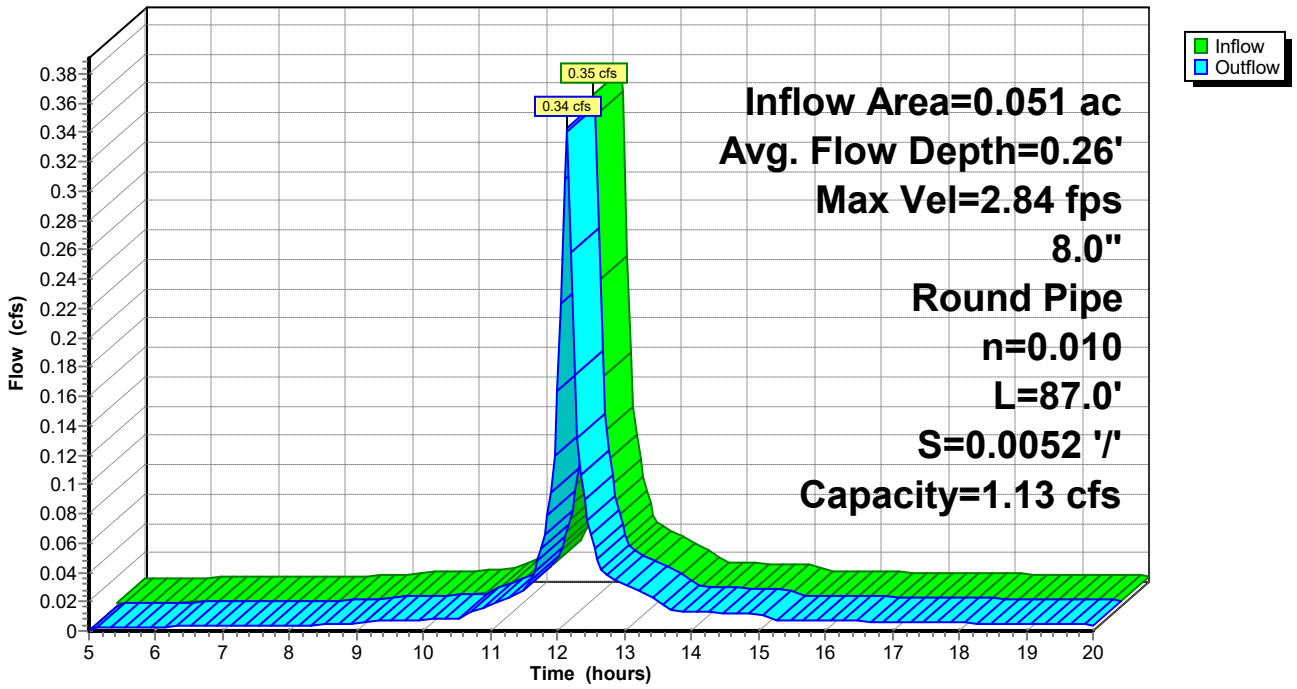
Peak Storage= 11 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 0.67' Flow Area= 0.3 sf, Capacity= 1.13 cfs

8.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 87.0' Slope= 0.0052 '/'
Inlet Invert= 676.38', Outlet Invert= 675.93'



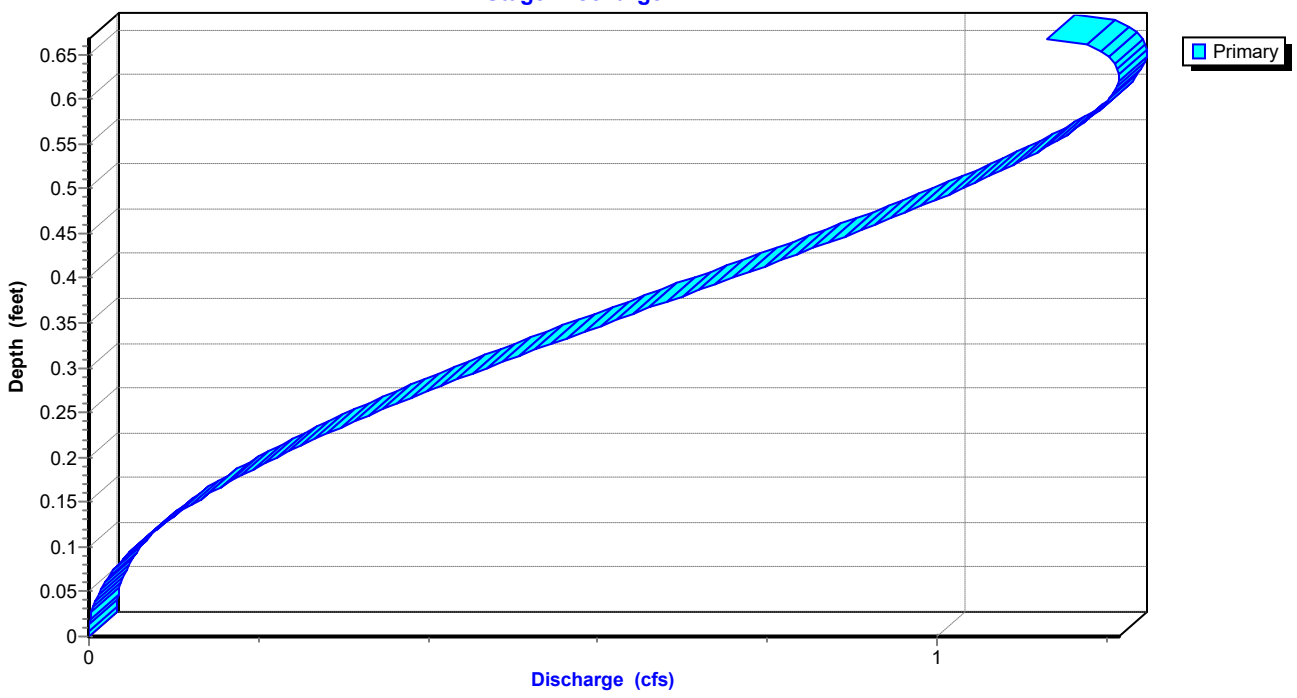
Reach 3R: S. 8" PVC

Hydrograph

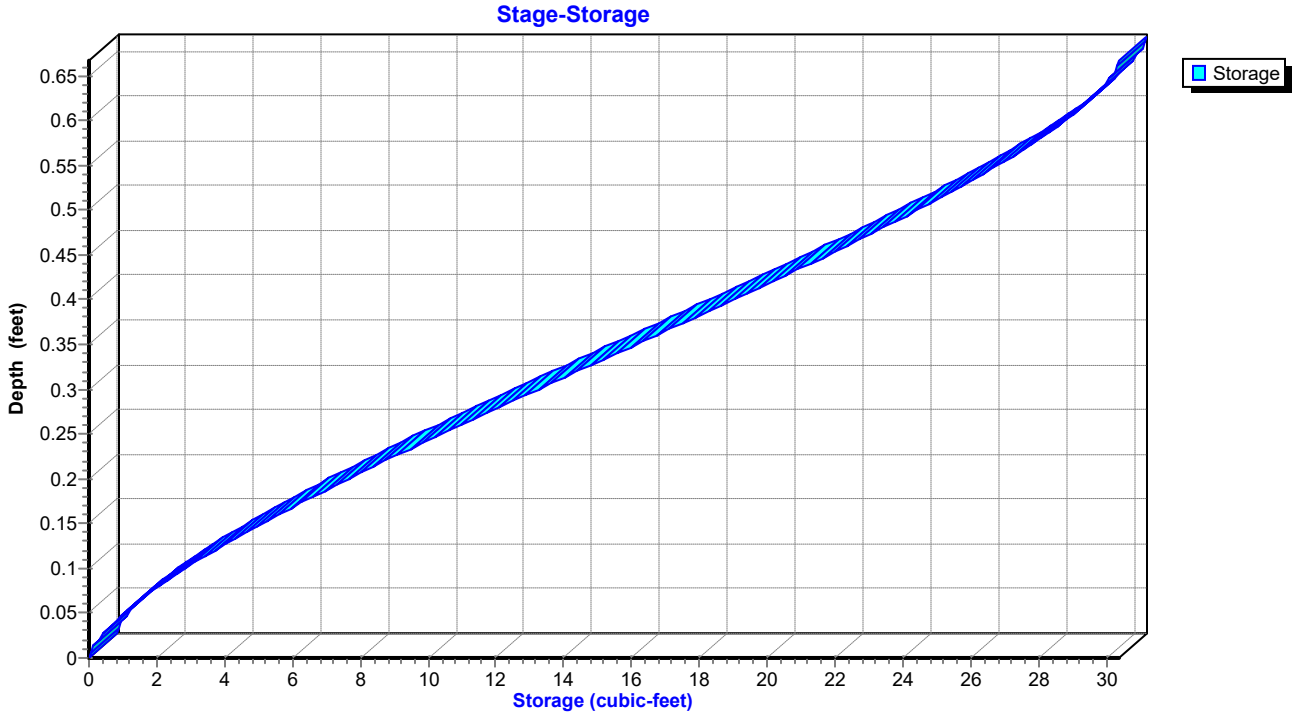


Reach 3R: S. 8" PVC

Stage-Discharge



Reach 3R: S. 8" PVC



Hydrograph for Reach 3R: S. 8" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	676.38	0.00
5.50	0.00	0	676.40	0.00
6.00	0.00	0	676.40	0.00
6.50	0.00	0	676.41	0.00
7.00	0.00	0	676.41	0.00
7.50	0.00	0	676.41	0.00
8.00	0.00	0	676.41	0.00
8.50	0.00	0	676.41	0.00
9.00	0.00	0	676.41	0.00
9.50	0.01	1	676.42	0.01
10.00	0.01	1	676.42	0.01
10.50	0.01	1	676.42	0.01
11.00	0.02	1	676.44	0.02
11.50	0.03	2	676.45	0.03
12.00	**0.18**	**6**	**676.56**	**0.16**
12.50	**0.06**	**3**	**676.49**	**0.07**
13.00	0.03	2	676.46	0.03
13.50	0.02	1	676.44	0.02
14.00	0.01	1	676.43	0.01
14.50	0.01	1	676.43	0.01
15.00	0.01	1	676.43	0.01
15.50	0.01	1	676.42	0.01
16.00	0.01	1	676.42	0.01
16.50	0.01	1	676.42	0.01
17.00	0.01	1	676.42	0.01
17.50	0.01	1	676.41	0.01
18.00	0.01	1	676.41	0.01
18.50	0.01	1	676.41	0.01
19.00	0.00	1	676.41	0.00
19.50	0.00	0	676.41	0.00
20.00	0.00	0	676.41	0.00

Stage-Discharge for Reach 3R: S. 8" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
676.38	0.00	0.00
676.39	0.37	0.00
676.40	0.60	0.00
676.41	0.78	0.00
676.42	0.94	0.01
676.43	1.08	0.01
676.44	1.21	0.02
676.45	1.34	0.03
676.46	1.46	0.03
676.47	1.57	0.04
676.48	1.67	0.05
676.49	1.77	0.07
676.50	1.87	0.08
676.51	1.96	0.09
676.52	2.05	0.11
676.53	2.13	0.13
676.54	2.22	0.14
676.55	2.29	0.16
676.56	2.37	0.18
676.57	2.44	0.20
676.58	2.51	0.22
676.59	2.58	0.24
676.60	2.65	0.27
676.61	2.71	0.29
676.62	2.77	0.31
676.63	2.83	0.34
676.64	2.88	0.36
676.65	2.94	0.39
676.66	2.99	0.42
676.67	3.04	0.44
676.68	3.09	0.47
676.69	3.14	0.50
676.70	3.18	0.53
676.71	3.22	0.56
676.72	3.26	0.58
676.73	3.30	0.61
676.74	3.34	0.64
676.75	3.38	0.67
676.76	3.41	0.70
676.77	3.44	0.73
676.78	3.47	0.76
676.79	3.50	0.79
676.80	3.53	0.82
676.81	3.55	0.85
676.82	3.57	0.87
676.83	3.59	0.90
676.84	3.61	0.93
676.85	3.63	0.95
676.86	3.64	0.98
676.87	3.66	1.01
676.88	3.67	1.03
676.89	3.68	1.05
676.90	3.68	1.08
676.91	3.69	1.10
676.92	**3.69**	1.12
676.93	3.69	1.14
676.94	3.69	1.15
676.95	3.68	1.17
676.96	3.67	1.18
676.97	3.66	1.19
676.98	3.64	1.20
676.99	3.62	1.21
677.00	3.59	**1.21**
677.01	3.56	1.21
677.02	3.51	1.21
677.03	3.46	1.20
677.04	3.38	1.18
677.05	3.17	1.11

Stage-Area-Storage for Reach 3R: S. 8" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
676.38	0.0	0
676.39	0.0	0
676.40	0.0	0
676.41	0.0	0
676.42	0.0	1
676.43	0.0	1
676.44	0.0	1
676.45	0.0	2
676.46	0.0	2
676.47	0.0	2
676.48	0.0	3
676.49	0.0	3
676.50	0.0	4
676.51	0.0	4
676.52	0.1	5
676.53	0.1	5
676.54	0.1	6
676.55	0.1	6
676.56	0.1	7
676.57	0.1	7
676.58	0.1	8
676.59	0.1	8
676.60	0.1	9
676.61	0.1	9
676.62	0.1	10
676.63	0.1	10
676.64	0.1	11
676.65	0.1	12
676.66	0.1	12
676.67	0.1	13
676.68	0.2	13
676.69	0.2	14
676.70	0.2	14
676.71	0.2	15
676.72	0.2	16
676.73	0.2	16
676.74	0.2	17
676.75	0.2	17
676.76	0.2	18
676.77	0.2	18
676.78	0.2	19
676.79	0.2	20
676.80	0.2	20
676.81	0.2	21
676.82	0.2	21
676.83	0.3	22
676.84	0.3	22
676.85	0.3	23
676.86	0.3	23
676.87	0.3	24
676.88	0.3	24
676.89	0.3	25
676.90	0.3	25
676.91	0.3	26
676.92	0.3	26
676.93	0.3	27
676.94	0.3	27
676.95	0.3	28
676.96	0.3	28
676.97	0.3	28
676.98	0.3	29
676.99	0.3	29
677.00	0.3	29
677.01	0.3	30
677.02	0.3	30
677.03	0.3	30
677.04	0.3	30
677.05	**0.3**	**30**

Summary for Reach 4R: W. 6" PVC

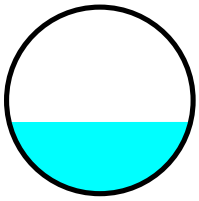
[52] Hint: Inlet/Outlet conditions not evaluated
[79] Warning: Submerged Pond 7P Primary device # 1 INLET by 0.17'

Inflow Area = 0.326 ac, 63.36% Impervious, Inflow Depth > 4.36" for 100-Year event
Inflow = 0.84 cfs @ 12.31 hrs, Volume= 0.119 af
Outflow = 0.84 cfs @ 12.32 hrs, Volume= 0.119 af, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.01 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 5.41 fps, Avg. Travel Time= 0.2 min

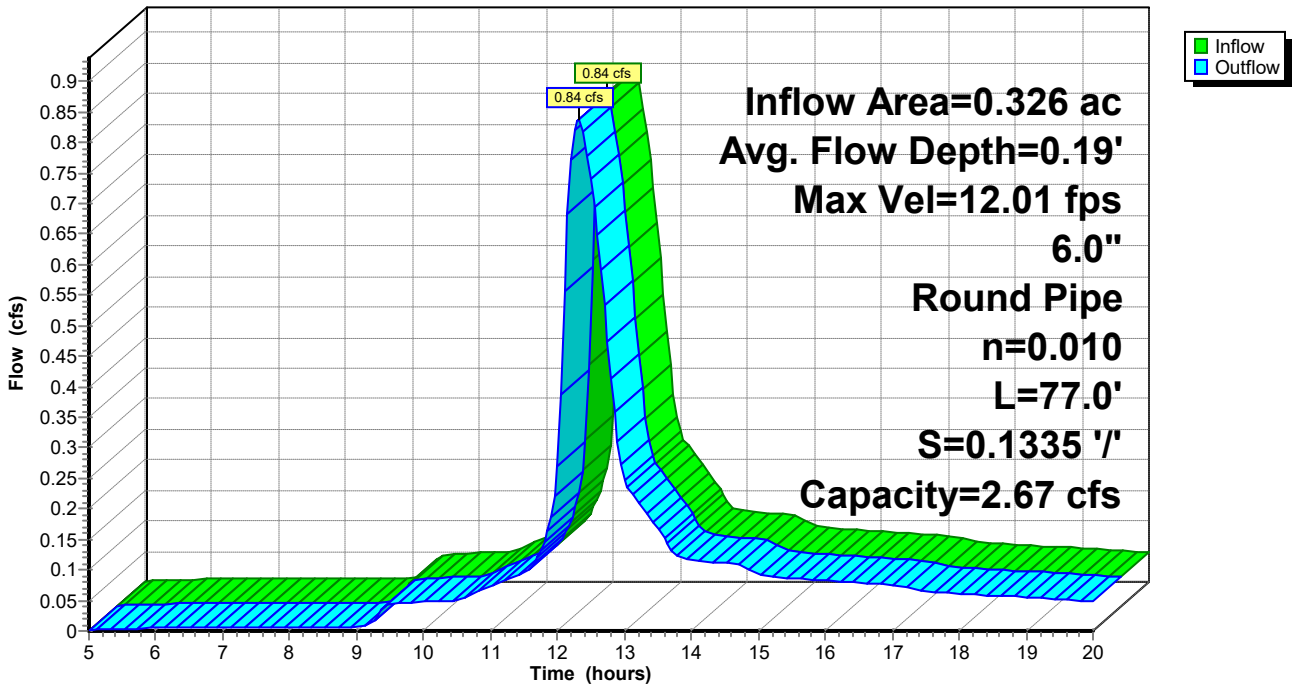
Peak Storage= 5 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 2.67 cfs

6.0" Round Pipe
n= 0.010
Length= 77.0' Slope= 0.1335 '/'
Inlet Invert= 668.80', Outlet Invert= 658.52'



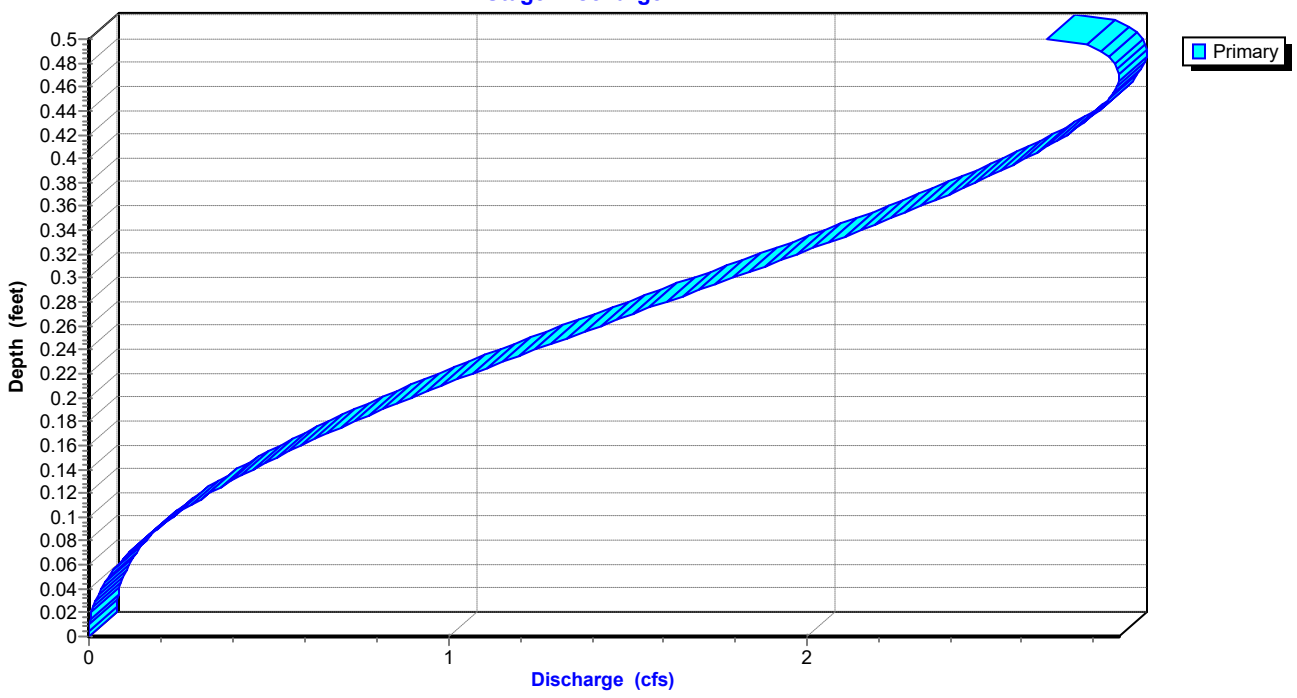
Reach 4R: W. 6" PVC

Hydrograph

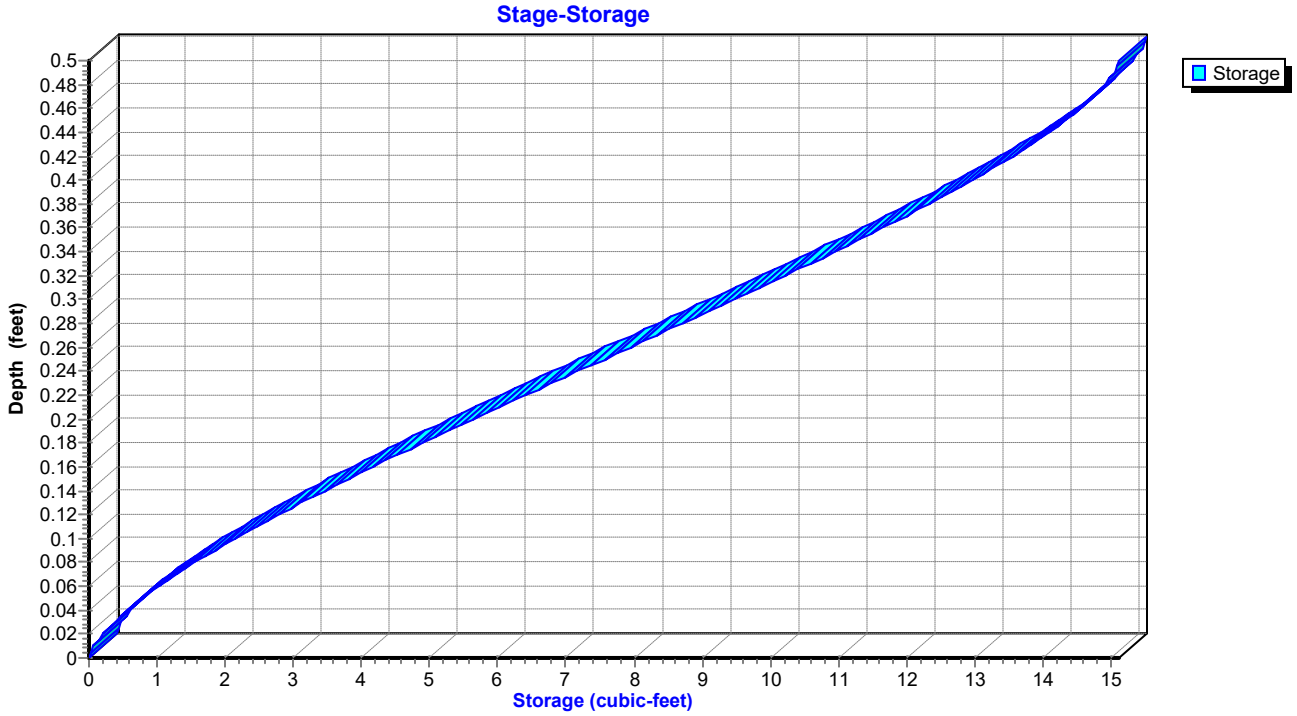


Reach 4R: W. 6" PVC

Stage-Discharge



Reach 4R: W. 6" PVC



Hydrograph for Reach 4R: W. 6" PVC

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)
5.00	0.00	0	668.80	0.00
5.50	0.00	0	668.81	0.00
6.00	0.00	0	668.82	0.00
6.50	0.00	0	668.82	0.00
7.00	0.01	0	668.82	0.01
7.50	0.01	0	668.82	0.01
8.00	0.01	0	668.82	0.01
8.50	0.01	0	668.82	0.01
9.00	0.01	0	668.82	0.01
9.50	0.04	1	668.85	0.05
10.00	0.05	1	668.85	0.05
10.50	0.05	1	668.85	0.05
11.00	0.07	1	668.86	0.07
11.50	0.09	1	668.86	0.09
12.00	**0.27**	**2**	**668.91**	**0.27**
12.50	**0.74**	**5**	**668.98**	**0.74**
13.00	0.25	2	668.90	0.25
13.50	0.17	2	668.89	0.17
14.00	0.12	1	668.87	0.12
14.50	0.11	1	668.87	0.11
15.00	0.09	1	668.86	0.09
15.50	0.09	1	668.86	0.09
16.00	0.08	1	668.86	0.08
16.50	0.08	1	668.86	0.08
17.00	0.08	1	668.86	0.08
17.50	0.06	1	668.85	0.06
18.00	0.06	1	668.85	0.06
18.50	0.06	1	668.85	0.06
19.00	0.06	1	668.85	0.06
19.50	0.05	1	668.85	0.05
20.00	0.05	1	668.85	0.05

Stage-Discharge for Reach 4R: W. 6" PVC

Elevation (feet)	Velocity (ft/sec)	Discharge (cfs)
668.80	0.00	0.00
668.81	1.91	0.00
668.82	3.01	0.01
668.83	3.93	0.02
668.84	4.72	0.03
668.85	5.45	0.06
668.86	6.11	0.08
668.87	6.72	0.11
668.88	7.30	0.15
668.89	7.84	0.19
668.90	8.35	0.23
668.91	8.83	0.28
668.92	9.29	0.34
668.93	9.73	0.39
668.94	10.14	0.46
668.95	10.54	0.52
668.96	10.91	0.59
668.97	11.27	0.66
668.98	11.61	0.74
668.99	11.94	0.82
669.00	12.25	0.90
669.01	12.54	0.98
669.02	12.82	1.07
669.03	13.09	1.15
669.04	13.34	1.24
669.05	13.57	1.33
669.06	13.80	1.42
669.07	14.01	1.52
669.08	14.20	1.61
669.09	14.39	1.70
669.10	14.56	1.79
669.11	14.71	1.88
669.12	14.86	1.97
669.13	14.98	2.06
669.14	15.10	2.15
669.15	15.20	2.23
669.16	15.29	2.31
669.17	15.36	2.39
669.18	15.41	2.47
669.19	15.45	2.54
669.20	15.47	2.61
669.21	**15.47**	2.67
669.22	15.46	2.72
669.23	15.42	2.77
669.24	15.35	2.81
669.25	15.26	2.84
669.26	15.14	2.86
669.27	14.97	**2.87**
669.28	14.74	2.86
669.29	14.41	2.82
669.30	13.57	2.67

Stage-Area-Storage for Reach 4R: W. 6" PVC

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
668.80	0.0	0
668.81	0.0	0
668.82	0.0	0
668.83	0.0	0
668.84	0.0	1
668.85	0.0	1
668.86	0.0	1
668.87	0.0	1
668.88	0.0	2
668.89	0.0	2
668.90	0.0	2
668.91	0.0	2
668.92	0.0	3
668.93	0.0	3
668.94	0.0	3
668.95	0.0	4
668.96	0.1	4
668.97	0.1	5
668.98	0.1	5
668.99	0.1	5
669.00	0.1	6
669.01	0.1	6
669.02	0.1	6
669.03	0.1	7
669.04	0.1	7
669.05	0.1	8
669.06	0.1	8
669.07	0.1	8
669.08	0.1	9
669.09	0.1	9
669.10	0.1	9
669.11	0.1	10
669.12	0.1	10
669.13	0.1	11
669.14	0.1	11
669.15	0.1	11
669.16	0.2	12
669.17	0.2	12
669.18	0.2	12
669.19	0.2	13
669.20	0.2	13
669.21	0.2	13
669.22	0.2	14
669.23	0.2	14
669.24	0.2	14
669.25	0.2	14
669.26	0.2	15
669.27	0.2	15
669.28	0.2	15
669.29	0.2	15
669.30	**0.2**	**15**

Summary for Pond 3P: E biofilter LINED

[82] Warning: Early inflow requires earlier time span
[42] Hint: Gap in defined storage above volume #4 at 681.34'
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=12)

Inflow Area = 0.043 ac, 57.33% Impervious, Inflow Depth > 5.00" for 100-Year event
Inflow = 0.29 cfs @ 12.15 hrs, Volume= 0.018 af
Outflow = 0.18 cfs @ 12.26 hrs, Volume= 0.017 af, Atten= 40%, Lag= 6.5 min
Primary = 0.18 cfs @ 12.26 hrs, Volume= 0.017 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 681.13' @ 12.26 hrs Surf.Area= 1,376 sf Storage= 272 cf

Plug-Flow detention time= 90.6 min calculated for 0.017 af (93% of inflow)
Center-of-Mass det. time= 65.5 min (816.1 - 750.7)

Volume	Invert	Avail.Storage	Storage Description
#1	678.00'	54 cf	**10.50'W x 15.50'L x 1.00'H sand invert** 163 cf Overall x 33.0% Voids
#2	679.00'	66 cf	**10.50'W x 15.50'L x 1.50'H media** 244 cf Overall x 27.0% Voids
#3	680.50'	128 cf	**10.50'W x 15.50'L x 0.60'H top media Z=3.0**
#4	681.10'	195 cf	**39.50'W x 19.50'L x 0.24'H NDS drain Z=3.0**
#5	681.43'	8 cf	**40.00'W x 20.00'L x 0.01'H weir overflow Z=3.0**
		451 cf	Total Available Storage

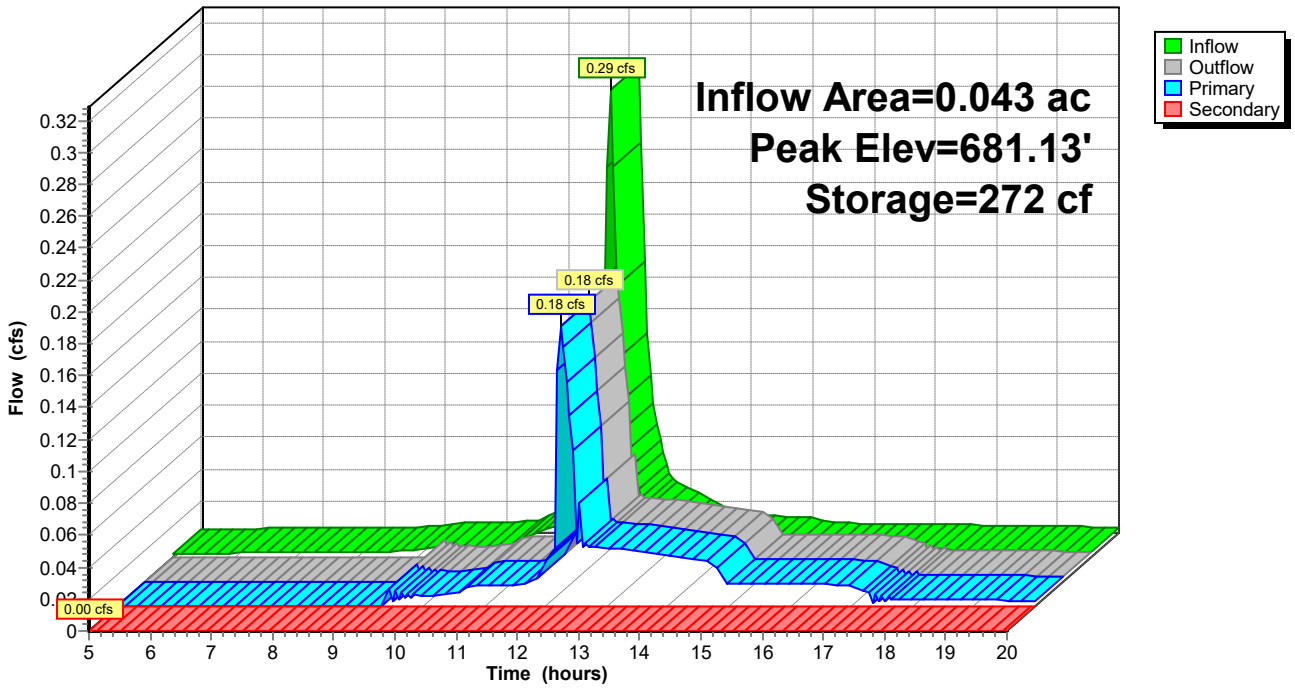
Device	Routing	Invert	Outlet Devices
#1	Secondary	681.34'	**6.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	681.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	678.00'	**3.600 in/hr underdrain over Horizontal area above 678.00'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 163 sf Phase-In= 0.50'

Primary OutFlow Max=0.17 cfs @ 12.26 hrs HW=681.13' (Free Discharge)
└**2=NDS drain** (Weir Controls 0.07 cfs @ 0.57 fps)
└**3=underdrain** (Controls 0.10 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=678.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

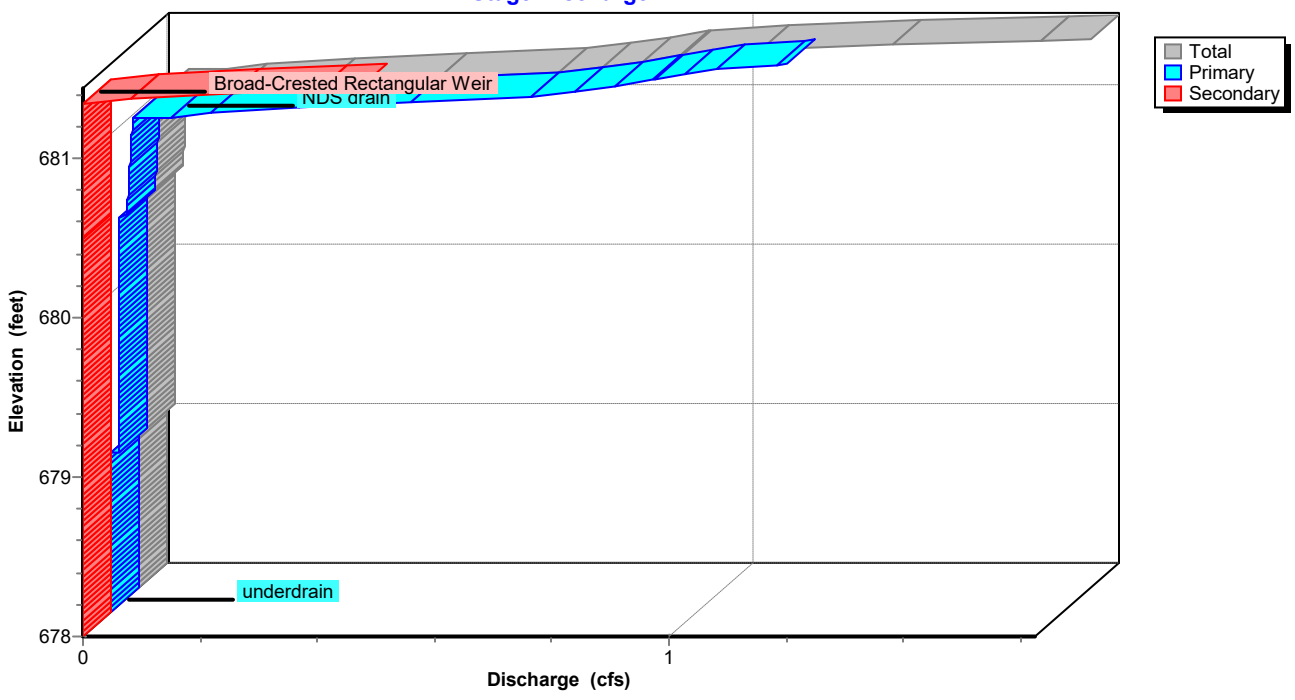
Pond 3P: E biofilter LINED

Hydrograph

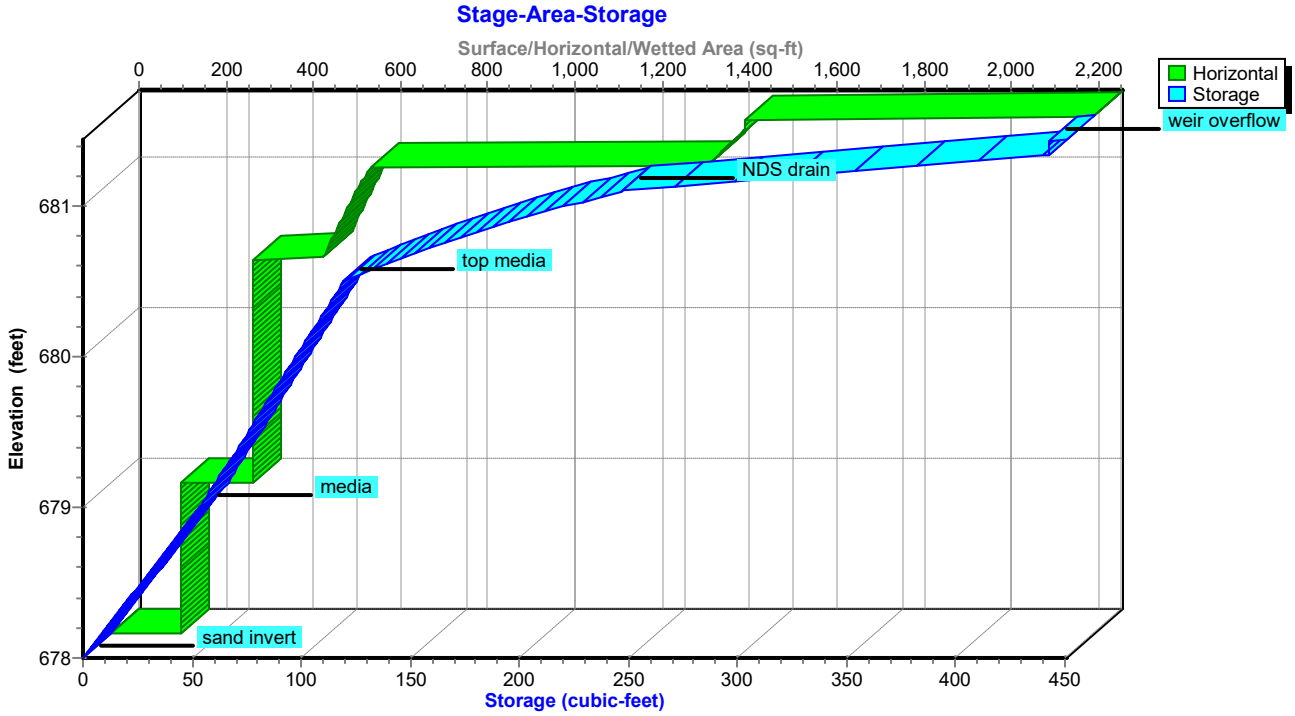


Pond 3P: E biofilter LINED

Stage-Discharge



Pond 3P: E biofilter LINED



Hydrograph for Pond 3P: E biofilter LINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.00	0	678.00	0.00	0.00	**0.00**
5.50	0.00	4	678.08	0.00	0.00	0.00
6.00	0.00	9	678.17	0.00	0.00	0.00
6.50	0.00	14	678.26	0.00	0.00	0.00
7.00	0.00	20	678.37	0.00	0.00	0.00
7.50	0.00	25	678.47	0.00	0.00	0.00
8.00	0.00	32	678.59	0.00	0.00	0.00
8.50	0.00	38	678.72	0.00	0.00	0.00
9.00	0.00	45	678.85	0.00	0.00	0.00
9.50	0.01	54	679.00	0.00	0.00	0.00
10.00	0.01	54	679.00	0.01	0.01	0.00
10.50	0.01	54	679.00	0.01	0.01	0.00
11.00	0.02	54	679.01	0.01	0.01	0.00
11.50	0.02	66	679.27	0.01	0.01	0.00
12.00	**0.13**	**136**	**680.59**	**0.03**	**0.03**	0.00
12.50	**0.06**	**247**	**681.10**	**0.04**	**0.04**	0.00
13.00	0.03	239	681.07	0.04	0.04	0.00
13.50	0.02	215	680.97	0.04	0.04	0.00
14.00	0.01	177	680.81	0.03	0.03	0.00
14.50	0.01	141	680.62	0.03	0.03	0.00
15.00	0.01	116	680.42	0.01	0.01	0.00
15.50	0.01	104	680.13	0.01	0.01	0.00
16.00	0.01	89	679.81	0.01	0.01	0.00
16.50	0.01	75	679.47	0.01	0.01	0.00
17.00	0.01	60	679.14	0.01	0.01	0.00
17.50	0.01	54	679.00	0.01	0.01	0.00
18.00	0.00	54	679.00	0.00	0.00	0.00
18.50	0.00	54	679.00	0.00	0.00	0.00
19.00	0.00	54	679.00	0.00	0.00	0.00
19.50	0.00	54	679.00	0.00	0.00	0.00
20.00	0.00	54	679.00	0.00	0.00	0.00

Stage-Discharge for Pond 3P: E biofilter LINED

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
678.00	0.00	0.00	0.00
678.05	0.00	0.00	0.00
678.10	0.00	0.00	0.00
678.15	0.00	0.00	0.00
678.20	0.00	0.00	0.00
678.25	0.00	0.00	0.00
678.30	0.00	0.00	0.00
678.35	0.00	0.00	0.00
678.40	0.00	0.00	0.00
678.45	0.00	0.00	0.00
678.50	0.00	0.00	0.00
678.55	0.00	0.00	0.00
678.60	0.00	0.00	0.00
678.65	0.00	0.00	0.00
678.70	0.00	0.00	0.00
678.75	0.00	0.00	0.00
678.80	0.00	0.00	0.00
678.85	0.00	0.00	0.00
678.90	0.00	0.00	0.00
678.95	0.00	0.00	0.00
679.00	0.01	0.01	0.00
679.05	0.01	0.01	0.00
679.10	0.01	0.01	0.00
679.15	0.01	0.01	0.00
679.20	0.01	0.01	0.00
679.25	0.01	0.01	0.00
679.30	0.01	0.01	0.00
679.35	0.01	0.01	0.00
679.40	0.01	0.01	0.00
679.45	0.01	0.01	0.00
679.50	0.01	0.01	0.00
679.55	0.01	0.01	0.00
679.60	0.01	0.01	0.00
679.65	0.01	0.01	0.00
679.70	0.01	0.01	0.00
679.75	0.01	0.01	0.00
679.80	0.01	0.01	0.00
679.85	0.01	0.01	0.00
679.90	0.01	0.01	0.00
679.95	0.01	0.01	0.00
680.00	0.01	0.01	0.00
680.05	0.01	0.01	0.00
680.10	0.01	0.01	0.00
680.15	0.01	0.01	0.00
680.20	0.01	0.01	0.00
680.25	0.01	0.01	0.00
680.30	0.01	0.01	0.00
680.35	0.01	0.01	0.00
680.40	0.01	0.01	0.00
680.45	0.01	0.01	0.00
680.50	0.03	0.03	0.00
680.55	0.03	0.03	0.00
680.60	0.03	0.03	0.00
680.65	0.03	0.03	0.00
680.70	0.03	0.03	0.00
680.75	0.03	0.03	0.00
680.80	0.03	0.03	0.00
680.85	0.03	0.03	0.00
680.90	0.03	0.03	0.00
680.95	0.03	0.03	0.00
681.00	0.04	0.04	0.00
681.05	0.04	0.04	0.00
681.10	0.10	0.10	0.00
681.15	0.25	0.25	0.00
681.20	0.52	0.52	0.00
681.25	0.75	0.75	0.00
681.30	0.86	0.86	0.00
681.35	0.96	0.95	0.01
681.40	**1.24**	**1.03**	**0.22**

Stage-Area-Storage for Pond 3P: E biofilter LINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
678.00	163	0
678.05	163	3
678.10	163	5
678.15	163	8
678.20	163	11
678.25	163	13
678.30	163	16
678.35	163	19
678.40	163	21
678.45	163	24
678.50	163	27
678.55	163	30
678.60	163	32
678.65	163	35
678.70	163	38
678.75	163	40
678.80	163	43
678.85	163	46
678.90	163	48
678.95	163	51
679.00	326	54
679.05	326	56
679.10	326	58
679.15	326	60
679.20	326	62
679.25	326	65
679.30	326	67
679.35	326	69
679.40	326	71
679.45	326	73
679.50	326	76
679.55	326	78
679.60	326	80
679.65	326	82
679.70	326	84
679.75	326	87
679.80	326	89
679.85	326	91
679.90	326	93
679.95	326	95
680.00	326	98
680.05	326	100
680.10	326	102
680.15	326	104
680.20	326	106
680.25	326	109
680.30	326	111
680.35	326	113
680.40	326	115
680.45	326	117
680.50	488	120
680.55	496	128
680.60	504	137
680.65	512	146
680.70	521	155
680.75	530	165
680.80	538	176
680.85	547	187
680.90	556	198
680.95	566	210
681.00	575	222
681.05	585	235
681.10	1,365	248
681.15	1,383	287
681.20	1,401	327
681.25	1,419	368
681.30	1,437	409
681.35	1,452	443
681.40	**1,452**	**443**

Summary for Pond 5P: W biofillter UNLINED

[82] Warning: Early inflow requires earlier time span
[93] Warning: Storage range exceeded by 0.10'
[88] Warning: Qout>Qin may require smaller dt or Finer Routing
[85] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 0.218 ac, 64.67% Impervious, Inflow Depth > 5.28" for 100-Year event
Inflow = 1.50 cfs @ 12.15 hrs, Volume= 0.096 af
Outflow = 1.73 cfs @ 12.10 hrs, Volume= 0.085 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.10 hrs, Volume= 0.001 af
Primary = 0.87 cfs @ 12.10 hrs, Volume= 0.074 af
Secondary = 0.87 cfs @ 12.11 hrs, Volume= 0.011 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 676.26' @ 12.10 hrs Surf.Area= 3,142 sf Storage= 1,063 cf

Plug-Flow detention time= 110.0 min calculated for 0.085 af (88% of inflow)
Center-of-Mass det. time= 74.2 min (821.8 - 747.6)

Volume	Invert	Avail.Storage	Storage Description
#1	671.75'	107 cf	**8.30'W x 39.20'L x 1.00'H sand invert** 325 cf Overall x 33.0% Voids
#2	672.75'	176 cf	**8.30'W x 39.20'L x 2.00'H media** 651 cf Overall x 27.0% Voids
#3	674.75'	728 cf	**8.30'W x 39.20'L x 1.35'H top media Z=3.0**
#4	676.10'	43 cf	**18.00'W x 47.00'L x 0.05'H NDS drain Z=3.0**
#5	676.15'	8 cf	**18.00'W x 47.00'L x 0.01'H weir overflow Z=3.0**
		1,063 cf	Total Available Storage

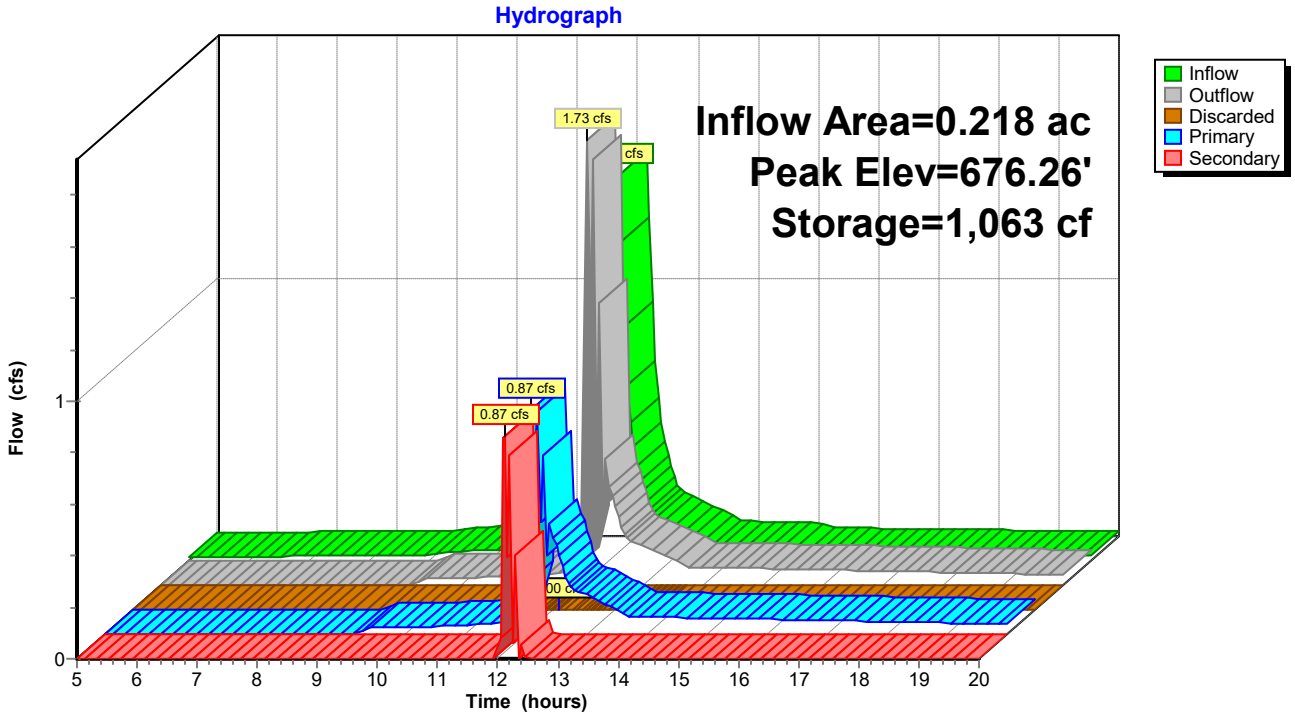
Device	Routing	Invert	Outlet Devices
#1	Secondary	676.15'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32
#2	Primary	676.10'	**0.5" x 2.0" Horiz. NDS drain X 50.00** C= 0.600 in 12.0" x 12.0" Grate (35% open area) Limited to weir flow at low heads
#3	Primary	672.75'	**3.600 in/hr underdrain over Horizontal area above 672.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 651 sf Phase-In= 0.50'
#4	Discarded	671.75'	**0.030 in/hr Exfiltration over Horizontal area above 671.75'** Conductivity to Groundwater Elevation = 650.00' Excluded Horizontal area = 325 sf Phase-In= 0.50'

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=676.26' (Free Discharge)
└**4=Exfiltration** (Controls 0.00 cfs)

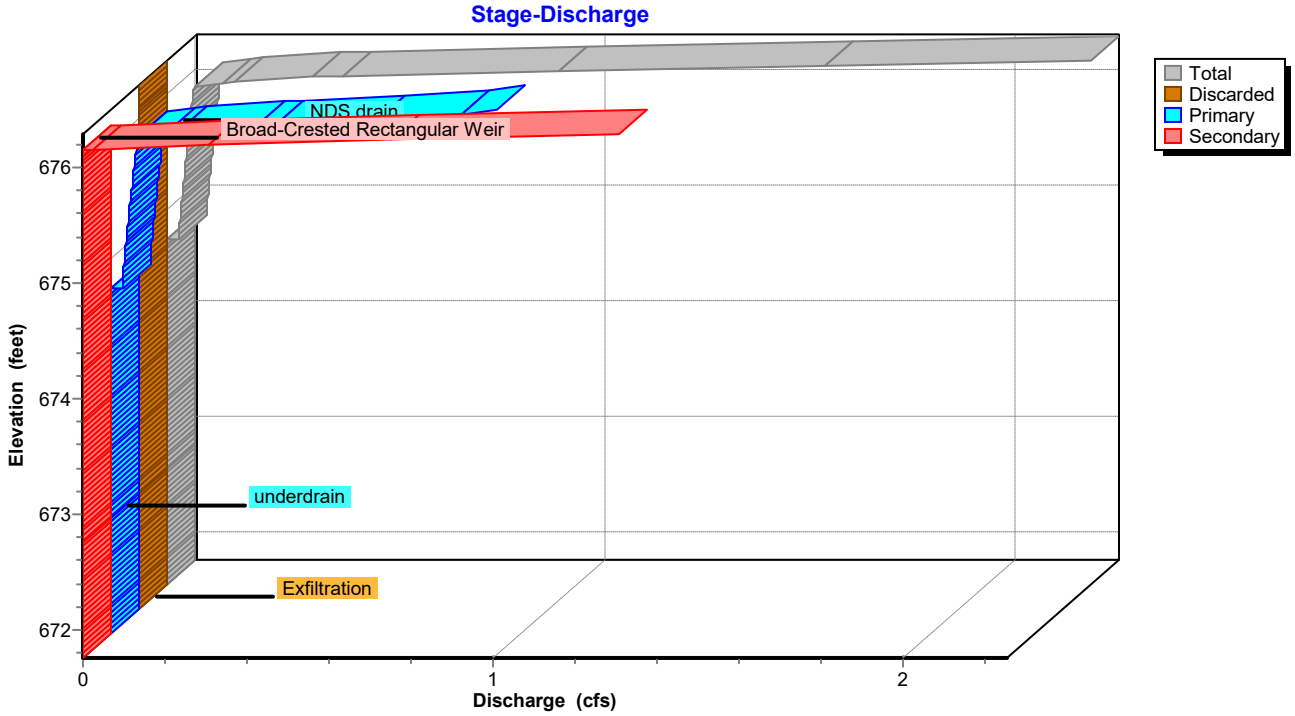
Primary OutFlow Max=0.87 cfs @ 12.10 hrs HW=676.26' (Free Discharge)
├**2=NDS drain** (Orifice Controls 0.66 cfs @ 1.91 fps)
└**3=underdrain** (Controls 0.21 cfs)

Secondary OutFlow Max=0.78 cfs @ 12.11 hrs HW=676.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.78 cfs @ 0.78 fps)

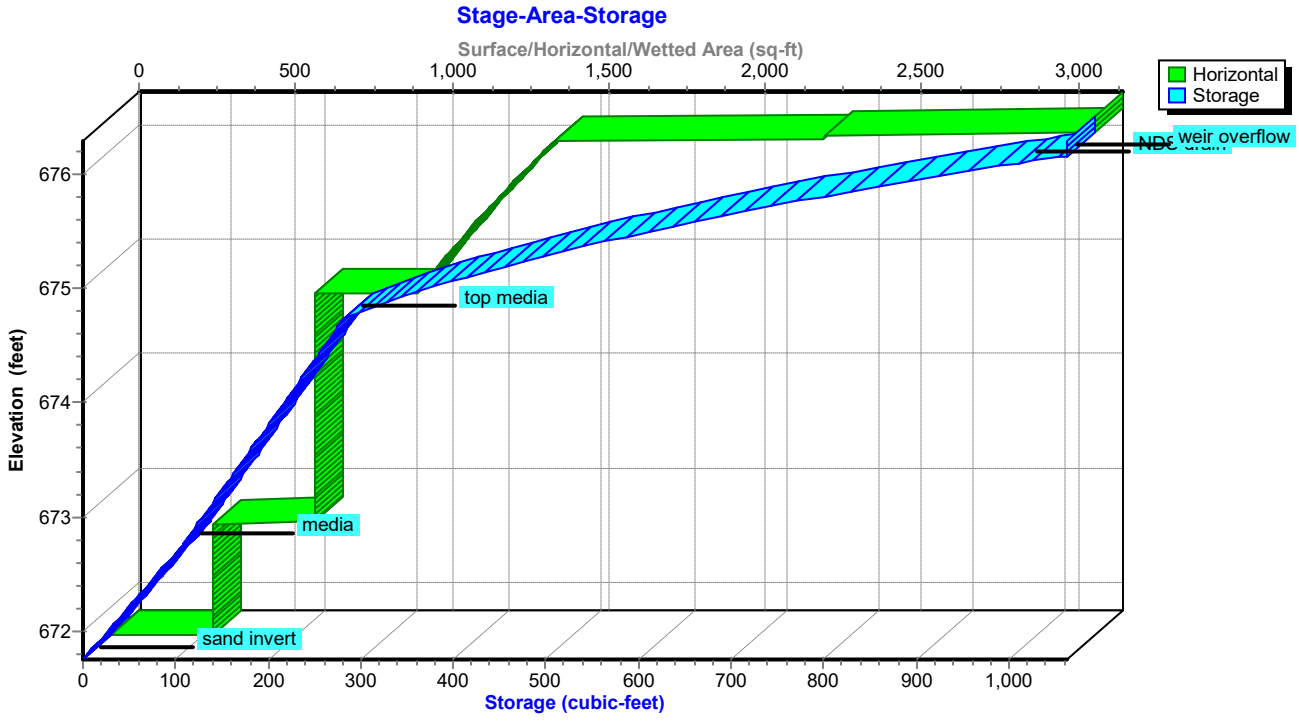
Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Pond 5P: W biofillter UNLINED



Hydrograph for Pond 5P: W biofillter UNLINED

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
5.00	0.01	1	671.76	0.00	0.00	0.00	0.00
5.50	0.01	25	671.98	0.00	0.00	0.00	0.00
6.00	0.02	51	672.22	0.00	0.00	0.00	0.00
6.50	0.02	79	672.49	0.00	0.00	0.00	0.00
7.00	0.02	110	672.78	0.00	0.00	0.00	0.00
7.50	0.02	143	673.16	0.00	0.00	0.00	0.00
8.00	0.02	178	673.56	0.00	0.00	0.00	0.00
8.50	0.02	216	673.98	0.00	0.00	0.00	0.00
9.00	0.02	255	674.43	0.00	0.00	0.00	0.00
9.50	0.04	291	674.78	0.03	0.00	0.03	0.00
10.00	0.04	309	674.83	0.03	0.00	0.03	0.00
10.50	0.04	328	674.88	0.03	0.00	0.03	0.00
11.00	0.09	389	675.04	0.04	0.00	0.03	0.00
11.50	0.13	519	675.32	0.04	0.00	0.04	0.00
12.00	**0.71**	**967**	**676.04**	**0.07**	**0.00**	**0.07**	**0.00**
12.50	**0.31**	**1,053**	**676.15**	**0.35**	**0.00**	**0.35**	**0.00**
13.00	0.14	1,019	676.11	0.15	0.00	0.15	0.00
13.50	0.09	1,000	676.09	0.10	0.00	0.10	0.00
14.00	0.06	983	676.06	0.07	0.00	0.07	0.00
14.50	0.05	964	676.04	0.07	0.00	0.06	0.00
15.00	0.05	942	676.01	0.06	0.00	0.06	0.00
15.50	0.03	894	675.94	0.06	0.00	0.06	0.00
16.00	0.03	840	675.87	0.06	0.00	0.06	0.00
16.50	0.03	788	675.79	0.06	0.00	0.06	0.00
17.00	0.03	737	675.71	0.05	0.00	0.05	0.00
17.50	0.03	689	675.63	0.05	0.00	0.05	0.00
18.00	0.02	642	675.55	0.05	0.00	0.05	0.00
18.50	0.02	597	675.47	0.05	0.00	0.05	0.00
19.00	0.02	554	675.39	0.05	0.00	0.04	0.00
19.50	0.02	512	675.31	0.04	0.00	0.04	0.00
20.00	0.02	472	675.23	0.04	0.00	0.04	0.00

Stage-Discharge for Pond 5P: W biofillter UNLINED

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
671.75	0.00	0.00	0.00	0.00
671.85	0.00	0.00	0.00	0.00
671.95	0.00	0.00	0.00	0.00
672.05	0.00	0.00	0.00	0.00
672.15	0.00	0.00	0.00	0.00
672.25	0.00	0.00	0.00	0.00
672.35	0.00	0.00	0.00	0.00
672.45	0.00	0.00	0.00	0.00
672.55	0.00	0.00	0.00	0.00
672.65	0.00	0.00	0.00	0.00
672.75	0.00	0.00	0.00	0.00
672.85	0.00	0.00	0.00	0.00
672.95	0.00	0.00	0.00	0.00
673.05	0.00	0.00	0.00	0.00
673.15	0.00	0.00	0.00	0.00
673.25	0.00	0.00	0.00	0.00
673.35	0.00	0.00	0.00	0.00
673.45	0.00	0.00	0.00	0.00
673.55	0.00	0.00	0.00	0.00
673.65	0.00	0.00	0.00	0.00
673.75	0.00	0.00	0.00	0.00
673.85	0.00	0.00	0.00	0.00
673.95	0.00	0.00	0.00	0.00
674.05	0.00	0.00	0.00	0.00
674.15	0.00	0.00	0.00	0.00
674.25	0.00	0.00	0.00	0.00
674.35	0.00	0.00	0.00	0.00
674.45	0.00	0.00	0.00	0.00
674.55	0.00	0.00	0.00	0.00
674.65	0.00	0.00	0.00	0.00
674.75	0.03	0.00	0.03	0.00
674.85	0.03	0.00	0.03	0.00
674.95	0.03	0.00	0.03	0.00
675.05	0.04	0.00	0.03	0.00
675.15	0.04	0.00	0.04	0.00
675.25	0.04	0.00	0.04	0.00
675.35	0.04	0.00	0.04	0.00
675.45	0.05	0.00	0.05	0.00
675.55	0.05	0.00	0.05	0.00
675.65	0.05	0.00	0.05	0.00
675.75	0.06	0.00	0.06	0.00
675.85	0.06	0.00	0.06	0.00
675.95	0.06	0.00	0.06	0.00
676.05	0.07	0.00	0.07	0.00
676.15	0.36	0.00	0.36	0.00
676.25	**1.63**	**0.00**	**0.86**	**0.77**

Stage-Area-Storage for Pond 5P: W biofillter UNLINED

Elevation (feet)	Horizontal (sq-ft)	Storage (cubic-feet)
671.75	325	0
671.80	325	5
671.85	325	11
671.90	325	16
671.95	325	21
672.00	325	27
672.05	325	32
672.10	325	38
672.15	325	43
672.20	325	48
672.25	325	54
672.30	325	59
672.35	325	64
672.40	325	70
672.45	325	75
672.50	325	81
672.55	325	86
672.60	325	91
672.65	325	97
672.70	325	102
672.75	651	107
672.80	651	112
672.85	651	116
672.90	651	121
672.95	651	125
673.00	651	129
673.05	651	134
673.10	651	138
673.15	651	143
673.20	651	147
673.25	651	151
673.30	651	156
673.35	651	160
673.40	651	164
673.45	651	169
673.50	651	173
673.55	651	178
673.60	651	182
673.65	651	186
673.70	651	191
673.75	651	195
673.80	651	200
673.85	651	204
673.90	651	208
673.95	651	213
674.00	651	217
674.05	651	222
674.10	651	226
674.15	651	230
674.20	651	235
674.25	651	239
674.30	651	244
674.35	651	248
674.40	651	252
674.45	651	257
674.50	651	261
674.55	651	265
674.60	651	270
674.65	651	274
674.70	651	279
674.75	976	283
674.80	990	300
674.85	1,005	317
674.90	1,020	335
674.95	1,035	354
675.00	1,050	373
675.05	1,065	394
675.10	1,080	415
675.15	1,096	437
675.20	1,112	459
675.25	1,128	483
675.30	1,144	507
675.35	1,160	532
675.40	1,177	558
675.45	1,193	585
675.50	1,210	612
675.55	1,227	641
675.60	1,244	670
675.65	1,262	700
675.70	1,279	731
675.75	1,297	763
675.80	1,315	796
675.85	1,333	829
675.90	1,351	864
675.95	1,370	899
676.00	1,389	936
676.05	1,407	973
676.10	2,272	1,012
676.15	**3,138**	**1,054**
676.20	**3,142**	**1,063**
676.25	3,142	1,063

Summary for Pond 7P: 48" UG storage

Inflow Area = 0.326 ac, 63.36% Impervious, Inflow Depth > 4.36" for 100-Year event
Inflow = 1.34 cfs @ 12.10 hrs, Volume= 0.119 af
Outflow = 0.84 cfs @ 12.31 hrs, Volume= 0.119 af, Atten= 38%, Lag= 12.7 min
Primary = 0.84 cfs @ 12.31 hrs, Volume= 0.119 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 671.64' @ 12.31 hrs Surf.Area= 185 sf Storage= 462 cf

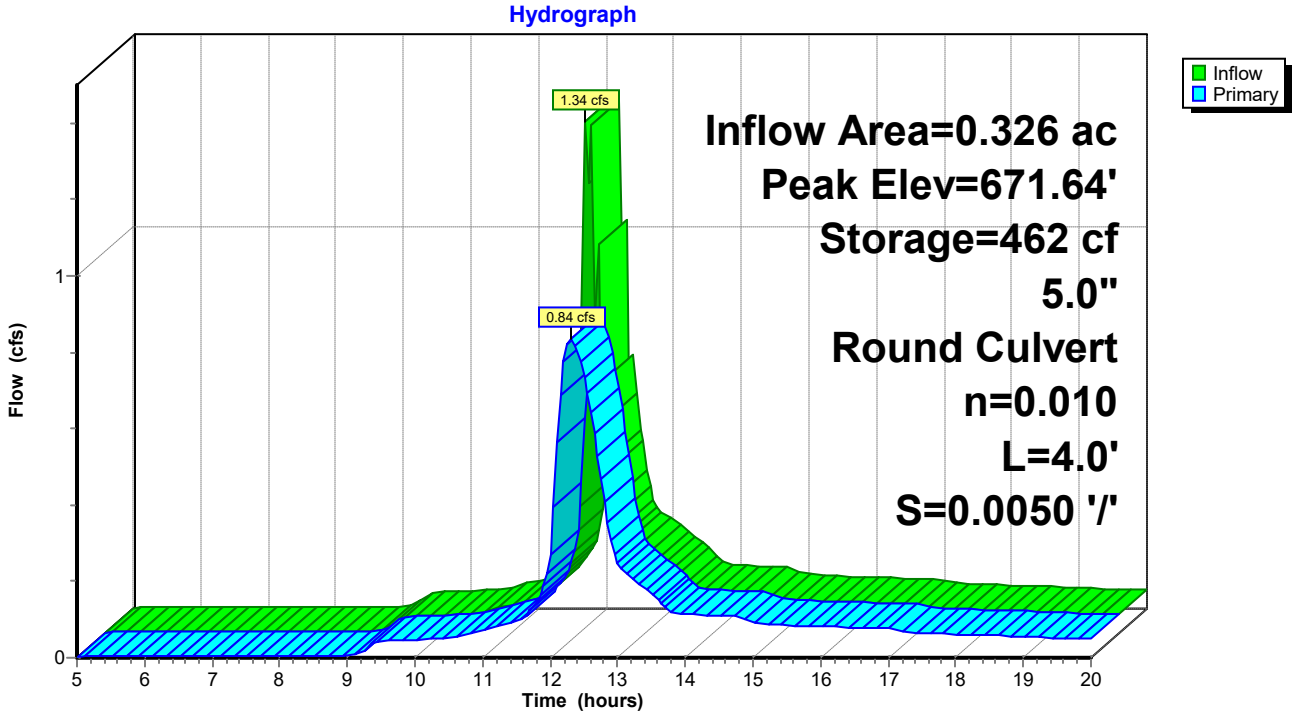
Plug-Flow detention time= 3.9 min calculated for 0.118 af (100% of inflow)
Center-of-Mass det. time= 3.5 min (815.0 - 811.6)

Volume	Invert	Avail.Storage	Storage Description
#1	668.82'	628 cf	**48.0" Round Pipe Storage** L= 50.0' S= 0.0026 '/'

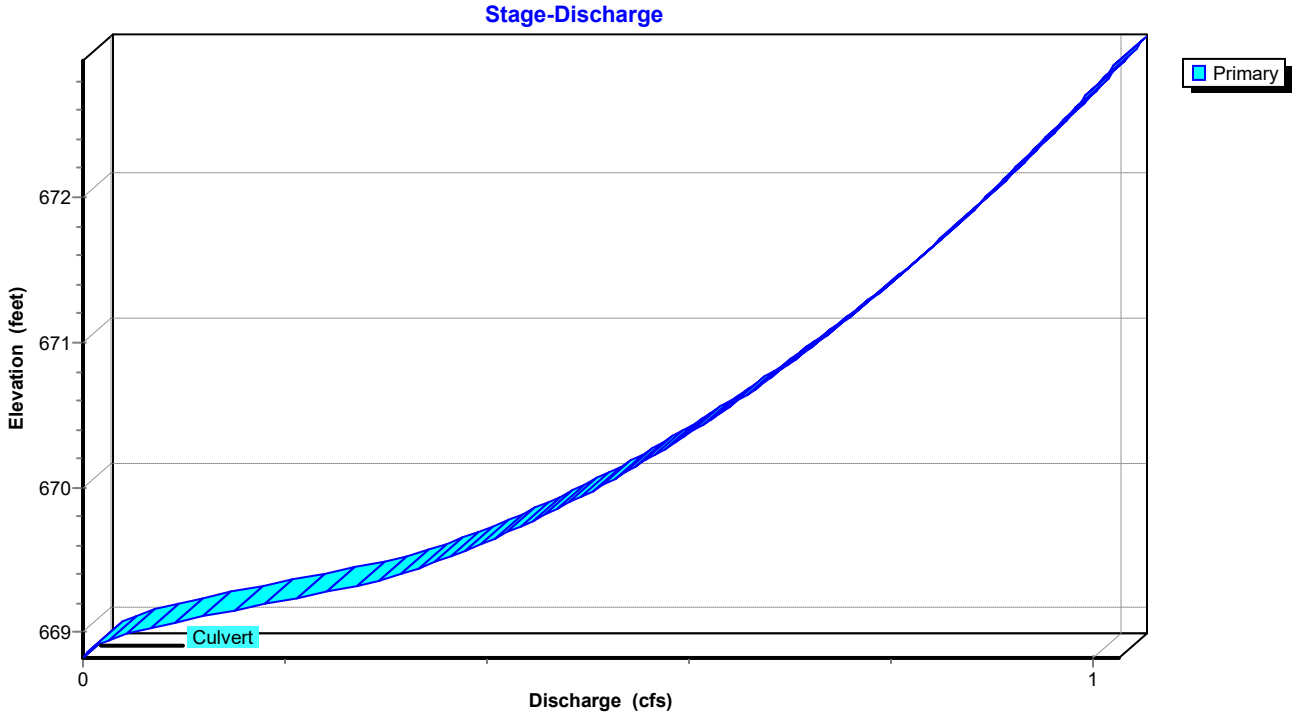
Device	Routing	Invert	Outlet Devices
#1	Primary	668.82'	**5.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 668.82' / 668.80' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.14 sf

Primary OutFlow Max=0.84 cfs @ 12.31 hrs HW=671.63' (Free Discharge)
1=Culvert (Inlet Controls 0.84 cfs @ 6.13 fps)

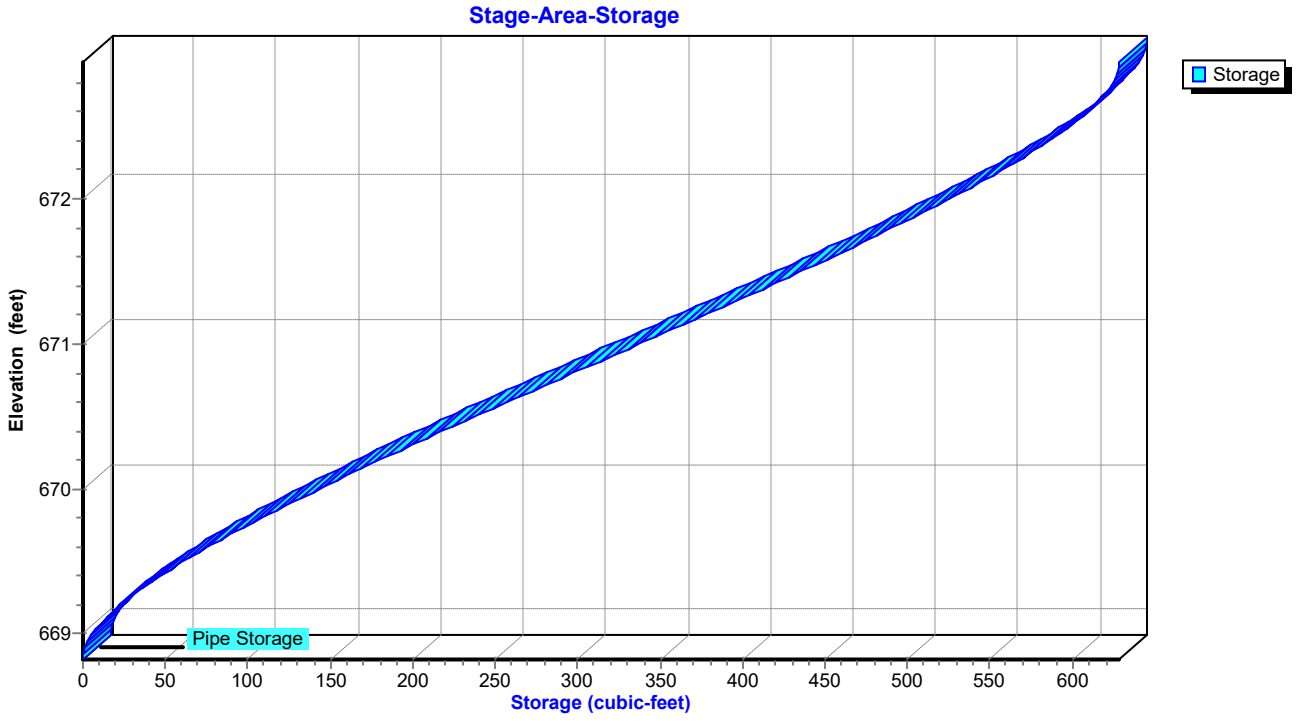
Pond 7P: 48" UG storage



Pond 7P: 48" UG storage



Pond 7P: 48" UG storage



Hydrograph for Pond 7P: 48" UG storage

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
5.00	0.00	0	668.83	0.00
5.50	0.00	0	668.86	0.00
6.00	0.00	0	668.87	0.00
6.50	0.00	0	668.87	0.00
7.00	0.01	0	668.87	0.01
7.50	0.01	0	668.87	0.01
8.00	0.01	0	668.87	0.01
8.50	0.01	0	668.88	0.01
9.00	0.01	0	668.88	0.01
9.50	0.04	4	668.99	0.04
10.00	0.05	5	668.99	0.05
10.50	0.05	5	669.00	0.05
11.00	0.07	8	669.04	0.07
11.50	0.10	11	669.07	0.09
12.00	**0.33**	**37**	**669.32**	**0.27**
12.50	**0.47**	**347**	**671.05**	**0.74**
13.00	0.23	32	669.28	0.25
13.50	0.16	21	669.18	0.17
14.00	0.12	13	669.10	0.12
14.50	0.11	13	669.10	0.11
15.00	0.09	11	669.07	0.09
15.50	0.09	10	669.06	0.09
16.00	0.08	9	669.05	0.08
16.50	0.08	9	669.05	0.08
17.00	0.08	8	669.04	0.08
17.50	0.07	7	669.02	0.06
18.00	0.06	7	669.02	0.06
18.50	0.06	6	669.01	0.06
19.00	0.05	6	669.01	0.06
19.50	0.05	5	669.00	0.05
20.00	0.05	5	668.99	0.05

Stage-Discharge for Pond 7P: 48" UG storage

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
668.82	0.00	671.37	0.79
668.87	0.00	671.42	0.80
668.92	0.02	671.47	0.81
668.97	0.04	671.52	0.82
669.02	0.06	671.57	0.83
669.07	0.09	671.62	0.83
669.12	0.13	671.67	0.84
669.17	0.16	671.72	0.85
669.22	0.20	671.77	0.86
669.27	0.24	671.82	0.87
669.32	0.27	671.87	0.87
669.37	0.30	671.92	0.88
669.42	0.32	671.97	0.89
669.47	0.34	672.02	0.90
669.52	0.36	672.07	0.90
669.57	0.38	672.12	0.91
669.62	0.40	672.17	0.92
669.67	0.42	672.22	0.93
669.72	0.43	672.27	0.93
669.77	0.45	672.32	0.94
669.82	0.46	672.37	0.95
669.87	0.48	672.42	0.95
669.92	0.49	672.47	0.96
669.97	0.50	672.52	0.97
670.02	0.52	672.57	0.98
670.07	0.53	672.62	0.98
670.12	0.54	672.67	0.99
670.17	0.55	672.72	1.00
670.22	0.57	672.77	1.00
670.27	0.58	672.82	1.01
670.32	0.59	672.87	1.02
670.37	0.60	672.92	**1.02**
670.42	0.61		
670.47	0.62		
670.52	0.63		
670.57	0.64		
670.62	0.65		
670.67	0.66		
670.72	0.67		
670.77	0.68		
670.82	0.69		
670.87	0.70		
670.92	0.71		
670.97	0.72		
671.02	0.73		
671.07	0.74		
671.12	0.75		
671.17	0.76		
671.22	0.77		
671.27	0.78		
671.32	0.78		

Stage-Area-Storage for Pond 7P: 48" UG storage

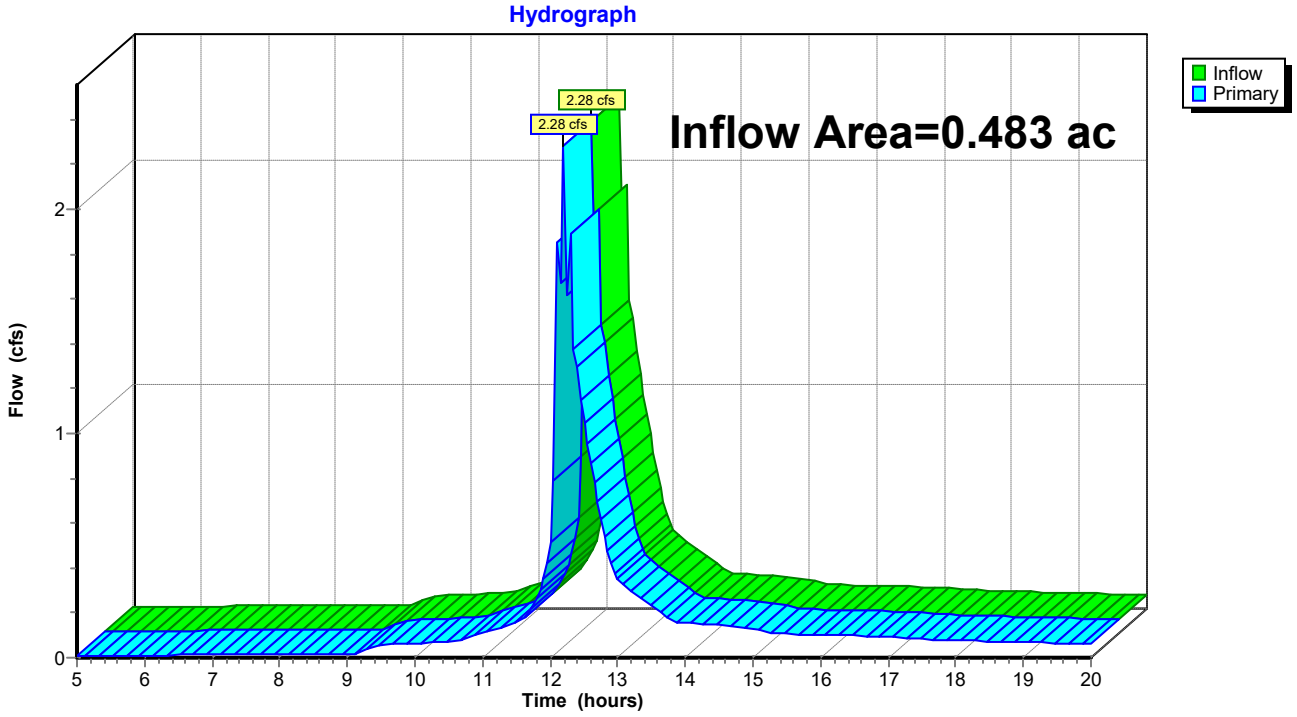
Elevation (feet)	Storage (cubic-feet)
668.82	0
668.87	0
668.92	1
668.97	4
669.02	7
669.07	11
669.12	15
669.17	20
669.22	25
669.27	31
669.32	37
669.37	43
669.42	50
669.47	57
669.52	64
669.57	72
669.62	79
669.67	87
669.72	95
669.77	103
669.82	112
669.87	120
669.92	129
669.97	138
670.02	147
670.07	156
670.12	165
670.17	174
670.22	184
670.27	193
670.32	203
670.37	212
670.42	222
670.47	232
670.52	242
670.57	251
670.62	261
670.67	271
670.72	281
670.77	291
670.82	301
670.87	311
670.92	321
670.97	331
671.02	341
671.07	351
671.12	361
671.17	371
671.22	381
671.27	391
671.32	400
671.37	410
671.42	420
671.47	429
671.52	439
671.57	448
671.62	458
671.67	467
671.72	476
671.77	485
671.82	494
671.87	503
671.92	511
671.97	520
672.02	528
672.07	536
672.12	544
672.17	552
672.22	560
672.27	567
672.32	574
672.37	581
672.42	587
672.47	594
672.52	600
672.57	605
672.62	610
672.67	615
672.72	619
672.77	623
672.82	626
672.87	628
672.92	**628**

Summary for Link 2L: frontage rd

Inflow Area = 0.483 ac, 55.51% Impervious, Inflow Depth > 4.60" for 100-Year event
Inflow = 2.28 cfs @ 12.20 hrs, Volume= 0.185 af
Primary = 2.28 cfs @ 12.20 hrs, Volume= 0.185 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: frontage rd



Hydrograph for Link 2L: frontage rd

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.01	**0.00**	0.01	17.75	0.08	0.00	0.08
5.25	0.01	0.00	0.01	18.00	0.08	0.00	0.08
5.50	0.01	0.00	0.01	18.25	0.08	0.00	0.08
5.75	0.01	0.00	0.01	18.50	0.07	0.00	0.07
6.00	0.01	0.00	0.01	18.75	0.07	0.00	0.07
6.25	0.01	0.00	0.01	19.00	0.07	0.00	0.07
6.50	0.01	0.00	0.01	19.25	0.07	0.00	0.07
6.75	0.01	0.00	0.01	19.50	0.07	0.00	0.07
7.00	0.01	0.00	0.01	19.75	0.06	0.00	0.06
7.25	0.01	0.00	0.01	20.00	0.06	0.00	0.06
7.50	0.01	0.00	0.01				
7.75	0.01	0.00	0.01				
8.00	0.01	0.00	0.01				
8.25	0.02	0.00	0.02				
8.50	0.02	0.00	0.02				
8.75	0.02	0.00	0.02				
9.00	0.02	0.00	0.02				
9.25	0.02	0.00	0.02				
9.50	0.06	0.00	0.06				
9.75	0.06	0.00	0.06				
10.00	0.06	0.00	0.06				
10.25	0.07	0.00	0.07				
10.50	0.07	0.00	0.07				
10.75	0.09	0.00	0.09				
11.00	0.11	0.00	0.11				
11.25	0.13	0.00	0.13				
11.50	0.16	0.00	0.16				
11.75	0.23	0.00	0.23				
12.00	**0.52**	0.00	**0.52**				
12.25	**1.62**	0.00	**1.62**				
12.50	1.04	0.00	1.04				
12.75	0.61	0.00	0.61				
13.00	0.35	0.00	0.35				
13.25	0.29	0.00	0.29				
13.50	0.24	0.00	0.24				
13.75	0.17	0.00	0.17				
14.00	0.15	0.00	0.15				
14.25	0.15	0.00	0.15				
14.50	0.15	0.00	0.15				
14.75	0.14	0.00	0.14				
15.00	0.13	0.00	0.13				
15.25	0.11	0.00	0.11				
15.50	0.11	0.00	0.11				
15.75	0.10	0.00	0.10				
16.00	0.10	0.00	0.10				
16.25	0.10	0.00	0.10				
16.50	0.10	0.00	0.10				
16.75	0.10	0.00	0.10				
17.00	0.09	0.00	0.09				
17.25	0.09	0.00	0.09				
17.50	0.08	0.00	0.08				

Chiro HCAD Existing

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.043	98	ex AC drive (1S)
0.018	98	ex CABC drive (1S)
0.423	61	grass, HSG B, DNR max (1S)
0.484	**66**	**TOTAL AREA**

Chiro HCAD Existing

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.423	HSG B	1S
0.000	HSG C	
0.000	HSG D	
0.061	Other	1S
0.484		**TOTAL AREA**

Chiro HCAD Existing

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.043	0.043	ex AC drive	1S
0.000	0.000	0.000	0.000	0.018	0.018	ex CABC drive	1S
0.000	0.423	0.000	0.000	0.000	0.423	grass	1S
0.000	**0.423**	**0.000**	**0.000**	**0.061**	**0.484**	**TOTAL AREA**	

Notes Listing (all nodes)

Line#	Node Number	Notes
1	Project	Rainfall events imported from "NRCS-Rain.txt" for 9170 WI La Crosse
2		Rainfall events imported from "NRCS-Rain.txt" for 9170 WI La Crosse

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: all ex site Runoff Area=21,065 sf 12.56% Impervious Runoff Depth>0.59"
Flow Length=100' Tc=5.0 min CN=WQ Runoff=0.37 cfs 0.024 af

Link 2L: frontage rd Inflow=0.37 cfs 0.024 af
Primary=0.37 cfs 0.024 af

Total Runoff Area = 0.484 ac Runoff Volume = 0.024 af Average Runoff Depth = 0.59"
87.44% Pervious = 0.423 ac 12.56% Impervious = 0.061 ac

Summary for Subcatchment 1S: all ex site

[49] Hint: Tc<2dt may require smaller dt

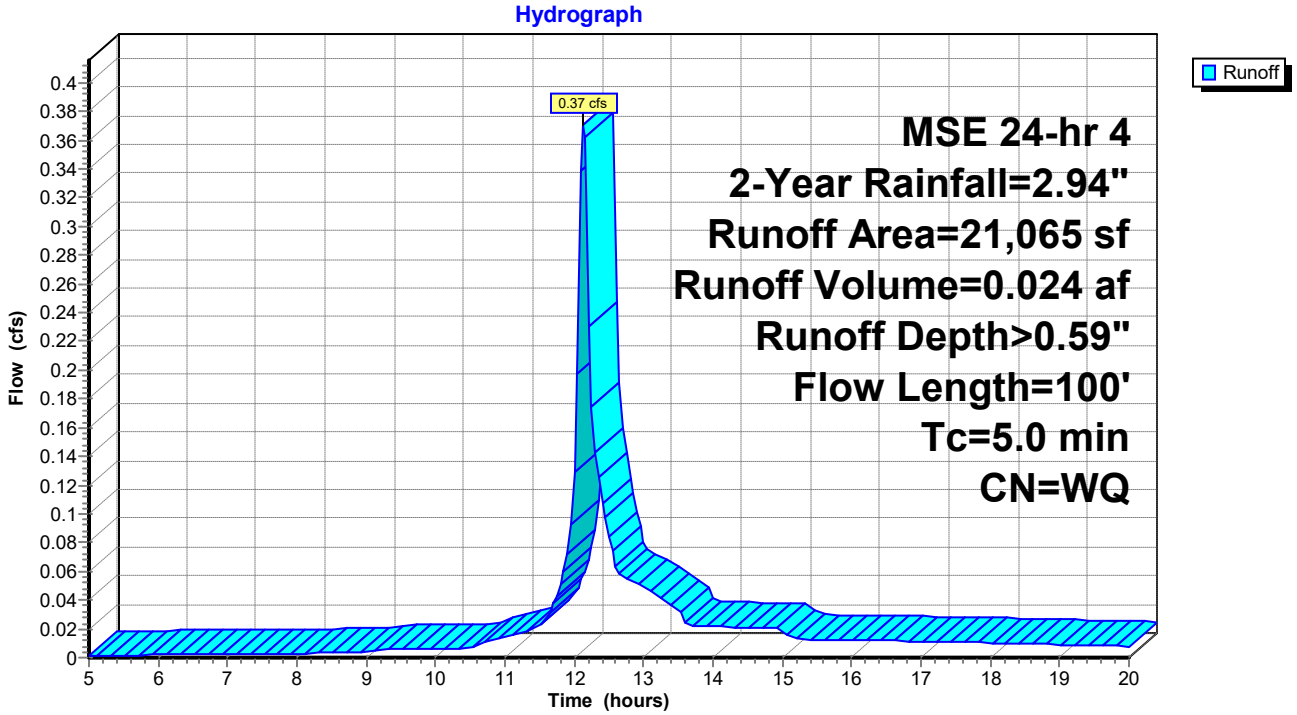
Runoff = 0.37 cfs @ 12.13 hrs, Volume= 0.024 af, Depth> 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 2-Year Rainfall=2.94"

	Area (sf)	CN	Description
*	1,855	98	ex AC drive
*	790	98	ex CABC drive
*	18,420	61	grass, HSG B, DNR max
	21,065		Weighted Average
	18,420		87.44% Pervious Area
	2,645		12.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100		0.33		**Direct Entry, mowed grass**

Subcatchment 1S: all ex site



Hydrograph for Subcatchment 1S: all ex site

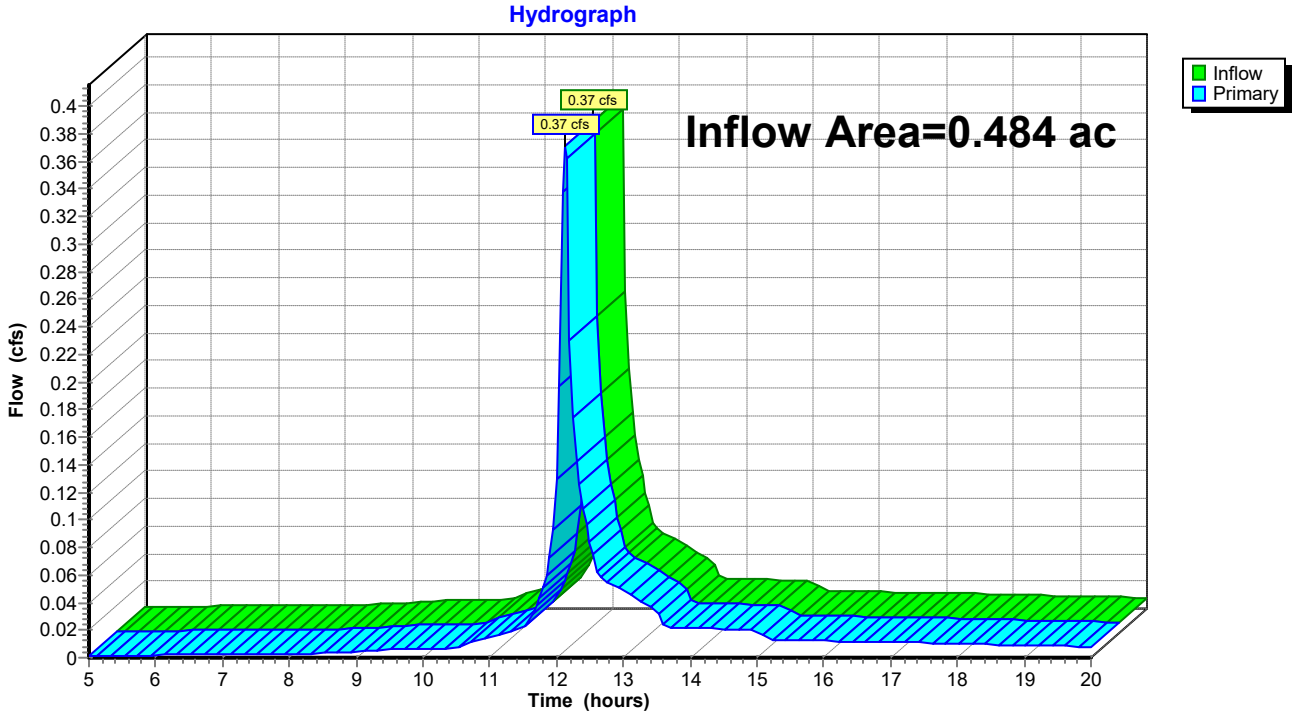
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.13	0.00	0.00
5.25	0.15	0.00	0.00
5.50	0.16	0.00	0.00
5.75	0.17	0.00	0.00
6.00	0.18	0.00	0.00
6.25	0.19	0.00	0.00
6.50	0.21	0.00	0.00
6.75	0.22	0.00	0.00
7.00	0.23	0.00	0.00
7.25	0.25	0.00	0.00
7.50	0.26	0.00	0.00
7.75	0.28	0.00	0.00
8.00	0.29	0.00	0.00
8.25	0.31	0.00	0.00
8.50	0.32	0.00	0.00
8.75	0.34	0.00	0.00
9.00	0.36	0.00	0.00
9.25	0.38	0.00	0.01
9.50	0.41	0.00	0.01
9.75	0.44	0.00	0.01
10.00	0.47	0.00	0.01
10.25	0.50	0.00	0.01
10.50	0.53	0.00	0.01
10.75	0.57	0.00	0.01
11.00	0.64	0.00	0.01
11.25	0.71	0.00	0.02
11.50	0.80	0.00	0.02
11.75	0.96	0.00	0.04
12.00	1.38	0.02	**0.13**
12.25	1.98	0.15	**0.17**
12.50	2.14	0.20	0.08
12.75	2.23	0.23	0.06
13.00	2.30	0.25	0.05
13.25	2.37	0.27	0.04
13.50	2.41	0.29	0.03
13.75	2.44	0.30	0.02
14.00	2.47	0.32	0.02
14.25	2.50	0.33	0.02
14.50	2.53	0.34	0.02
14.75	2.56	0.35	0.02
15.00	2.58	0.36	0.02
15.25	2.60	0.37	0.01
15.50	2.62	0.37	0.01
15.75	2.63	0.38	0.01
16.00	2.65	0.39	0.01
16.25	2.66	0.39	0.01
16.50	2.68	0.40	0.01
16.75	2.69	0.41	0.01
17.00	2.71	0.41	0.01
17.25	2.72	0.42	0.01
17.50	2.73	0.42	0.01
17.75	2.75	0.43	0.01
18.00	2.76	0.43	0.01
18.25	2.77	0.44	0.01
18.50	2.78	0.44	0.01
18.75	2.79	0.45	0.01
19.00	2.81	0.45	0.01
19.25	2.82	0.46	0.01
19.50	2.83	0.46	0.01
19.75	2.84	0.47	0.01
20.00	**2.84**	**0.47**	0.01

Summary for Link 2L: frontage rd

Inflow Area = 0.484 ac, 12.56% Impervious, Inflow Depth > 0.59" for 2-Year event
Inflow = 0.37 cfs @ 12.13 hrs, Volume= 0.024 af
Primary = 0.37 cfs @ 12.13 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: frontage rd



Hydrograph for Link 2L: frontage rd

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	17.75	0.01	0.00	0.01
5.25	0.00	0.00	0.00	18.00	0.01	0.00	0.01
5.50	0.00	0.00	0.00	18.25	0.01	0.00	0.01
5.75	0.00	0.00	0.00	18.50	0.01	0.00	0.01
6.00	0.00	0.00	0.00	18.75	0.01	0.00	0.01
6.25	0.00	0.00	0.00	19.00	0.01	0.00	0.01
6.50	0.00	0.00	0.00	19.25	0.01	0.00	0.01
6.75	0.00	0.00	0.00	19.50	0.01	0.00	0.01
7.00	0.00	0.00	0.00	19.75	0.01	0.00	0.01
7.25	0.00	0.00	0.00	20.00	0.01	0.00	0.01
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.00	0.00	0.00				
8.75	0.00	0.00	0.00				
9.00	0.00	0.00	0.00				
9.25	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
9.75	0.01	0.00	0.01				
10.00	0.01	0.00	0.01				
10.25	0.01	0.00	0.01				
10.50	0.01	0.00	0.01				
10.75	0.01	0.00	0.01				
11.00	0.01	0.00	0.01				
11.25	0.02	0.00	0.02				
11.50	0.02	0.00	0.02				
11.75	0.04	0.00	0.04				
12.00	**0.13**	0.00	**0.13**				
12.25	**0.17**	0.00	**0.17**				
12.50	0.08	0.00	0.08				
12.75	0.06	0.00	0.06				
13.00	0.05	0.00	0.05				
13.25	0.04	0.00	0.04				
13.50	0.03	0.00	0.03				
13.75	0.02	0.00	0.02				
14.00	0.02	0.00	0.02				
14.25	0.02	0.00	0.02				
14.50	0.02	0.00	0.02				
14.75	0.02	0.00	0.02				
15.00	0.02	0.00	0.02				
15.25	0.01	0.00	0.01				
15.50	0.01	0.00	0.01				
15.75	0.01	0.00	0.01				
16.00	0.01	0.00	0.01				
16.25	0.01	0.00	0.01				
16.50	0.01	0.00	0.01				
16.75	0.01	0.00	0.01				
17.00	0.01	0.00	0.01				
17.25	0.01	0.00	0.01				
17.50	0.01	0.00	0.01				

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: all ex site Runoff Area=21,065 sf 12.56% Impervious Runoff Depth>1.28"
Flow Length=100' Tc=5.0 min CN=WQ Runoff=0.95 cfs 0.051 af

Link 2L: frontage rd Inflow=0.95 cfs 0.051 af
Primary=0.95 cfs 0.051 af

Total Runoff Area = 0.484 ac Runoff Volume = 0.051 af Average Runoff Depth = 1.28"
87.44% Pervious = 0.423 ac 12.56% Impervious = 0.061 ac

Summary for Subcatchment 1S: all ex site

[49] Hint: Tc<2dt may require smaller dt

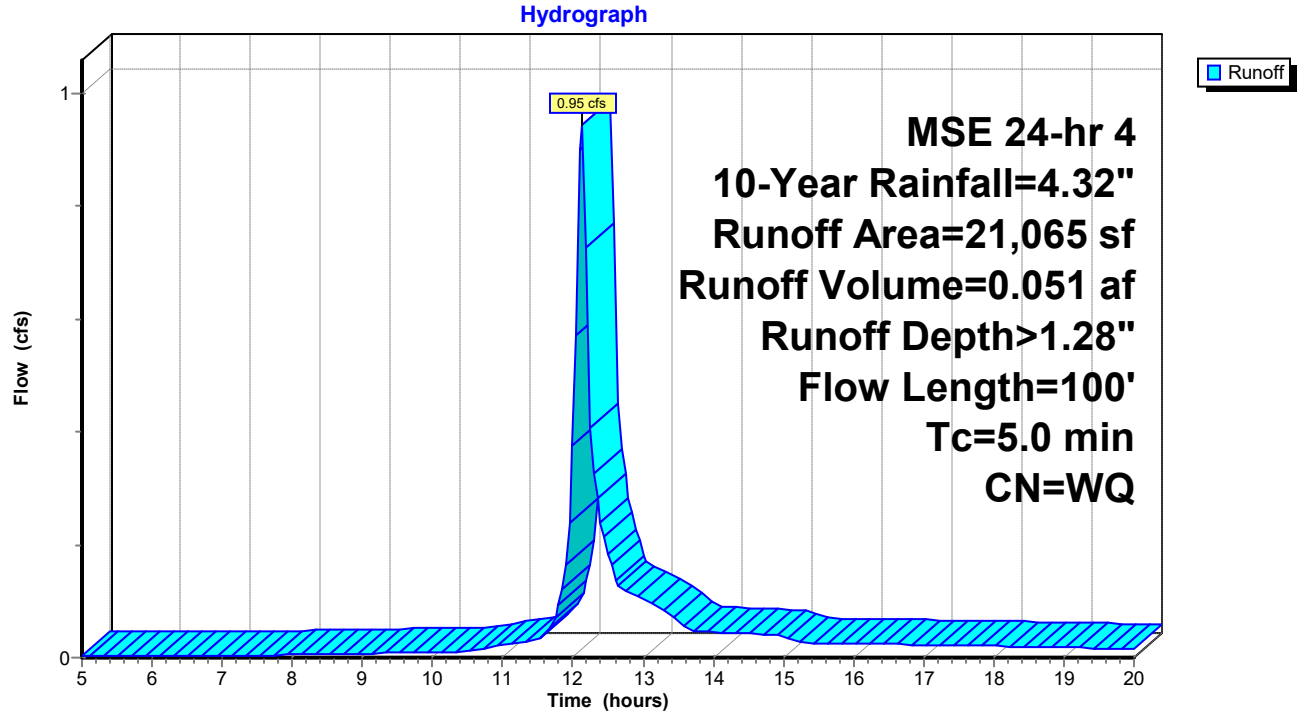
Runoff = 0.95 cfs @ 12.13 hrs, Volume= 0.051 af, Depth> 1.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 10-Year Rainfall=4.32"

	Area (sf)	CN	Description
*	1,855	98	ex AC drive
*	790	98	ex CABC drive
*	18,420	61	grass, HSG B, DNR max
	21,065		Weighted Average
	18,420		87.44% Pervious Area
	2,645		12.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100		0.33		**Direct Entry, mowed grass**

Subcatchment 1S: all ex site



Hydrograph for Subcatchment 1S: all ex site

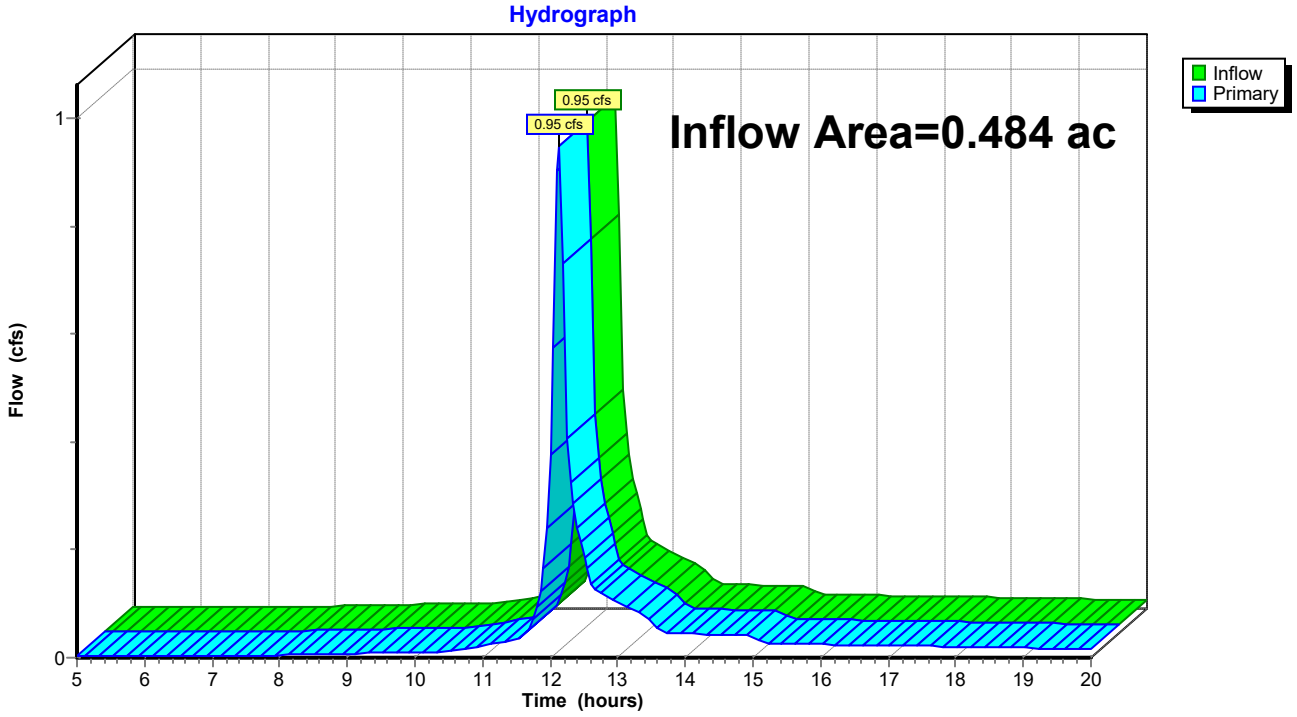
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.20	0.00	0.00
5.25	0.21	0.00	0.00
5.50	0.23	0.00	0.00
5.75	0.25	0.00	0.00
6.00	0.27	0.00	0.00
6.25	0.28	0.00	0.00
6.50	0.30	0.00	0.00
6.75	0.32	0.00	0.00
7.00	0.34	0.00	0.00
7.25	0.36	0.00	0.00
7.50	0.38	0.00	0.00
7.75	0.41	0.00	0.00
8.00	0.43	0.00	0.00
8.25	0.45	0.00	0.00
8.50	0.47	0.00	0.01
8.75	0.50	0.00	0.01
9.00	0.52	0.00	0.01
9.25	0.56	0.00	0.01
9.50	0.60	0.00	0.01
9.75	0.64	0.00	0.01
10.00	0.68	0.00	0.01
10.25	0.73	0.00	0.01
10.50	0.77	0.00	0.01
10.75	0.84	0.00	0.02
11.00	0.93	0.00	0.02
11.25	1.04	0.00	0.03
11.50	1.17	0.00	0.03
11.75	1.42	0.03	0.07
12.00	2.02	0.16	**0.38**
12.25	2.90	0.50	**0.41**
12.50	3.15	0.62	0.18
12.75	3.28	0.68	0.12
13.00	3.39	0.74	0.10
13.25	3.48	0.79	0.09
13.50	3.55	0.83	0.07
13.75	3.59	0.85	0.05
14.00	3.64	0.88	0.04
14.25	3.68	0.90	0.04
14.50	3.72	0.92	0.04
14.75	3.76	0.94	0.04
15.00	3.80	0.97	0.04
15.25	3.82	0.98	0.03
15.50	3.85	0.99	0.03
15.75	3.87	1.01	0.03
16.00	3.89	1.02	0.02
16.25	3.91	1.04	0.02
16.50	3.94	1.05	0.02
16.75	3.96	1.06	0.02
17.00	3.98	1.07	0.02
17.25	4.00	1.08	0.02
17.50	4.02	1.10	0.02
17.75	4.04	1.11	0.02
18.00	4.05	1.12	0.02
18.25	4.07	1.13	0.02
18.50	4.09	1.14	0.02
18.75	4.11	1.15	0.02
19.00	4.12	1.16	0.02
19.25	4.14	1.17	0.02
19.50	4.15	1.18	0.02
19.75	4.17	1.19	0.02
20.00	**4.18**	**1.19**	0.02

Summary for Link 2L: frontage rd

Inflow Area = 0.484 ac, 12.56% Impervious, Inflow Depth > 1.28" for 10-Year event
Inflow = 0.95 cfs @ 12.13 hrs, Volume= 0.051 af
Primary = 0.95 cfs @ 12.13 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: frontage rd



Hydrograph for Link 2L: frontage rd

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.00	**0.00**	0.00	17.75	0.02	0.00	0.02
5.25	0.00	0.00	0.00	18.00	0.02	0.00	0.02
5.50	0.00	0.00	0.00	18.25	0.02	0.00	0.02
5.75	0.00	0.00	0.00	18.50	0.02	0.00	0.02
6.00	0.00	0.00	0.00	18.75	0.02	0.00	0.02
6.25	0.00	0.00	0.00	19.00	0.02	0.00	0.02
6.50	0.00	0.00	0.00	19.25	0.02	0.00	0.02
6.75	0.00	0.00	0.00	19.50	0.02	0.00	0.02
7.00	0.00	0.00	0.00	19.75	0.02	0.00	0.02
7.25	0.00	0.00	0.00	20.00	0.02	0.00	0.02
7.50	0.00	0.00	0.00				
7.75	0.00	0.00	0.00				
8.00	0.00	0.00	0.00				
8.25	0.00	0.00	0.00				
8.50	0.01	0.00	0.01				
8.75	0.01	0.00	0.01				
9.00	0.01	0.00	0.01				
9.25	0.01	0.00	0.01				
9.50	0.01	0.00	0.01				
9.75	0.01	0.00	0.01				
10.00	0.01	0.00	0.01				
10.25	0.01	0.00	0.01				
10.50	0.01	0.00	0.01				
10.75	0.02	0.00	0.02				
11.00	0.02	0.00	0.02				
11.25	0.03	0.00	0.03				
11.50	0.03	0.00	0.03				
11.75	0.07	0.00	0.07				
12.00	**0.38**	0.00	**0.38**				
12.25	**0.41**	0.00	**0.41**				
12.50	0.18	0.00	0.18				
12.75	0.12	0.00	0.12				
13.00	0.10	0.00	0.10				
13.25	0.09	0.00	0.09				
13.50	0.07	0.00	0.07				
13.75	0.05	0.00	0.05				
14.00	0.04	0.00	0.04				
14.25	0.04	0.00	0.04				
14.50	0.04	0.00	0.04				
14.75	0.04	0.00	0.04				
15.00	0.04	0.00	0.04				
15.25	0.03	0.00	0.03				
15.50	0.03	0.00	0.03				
15.75	0.03	0.00	0.03				
16.00	0.02	0.00	0.02				
16.25	0.02	0.00	0.02				
16.50	0.02	0.00	0.02				
16.75	0.02	0.00	0.02				
17.00	0.02	0.00	0.02				
17.25	0.02	0.00	0.02				
17.50	0.02	0.00	0.02				

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: all ex site Runoff Area=21,065 sf 12.56% Impervious Runoff Depth>3.24"
Flow Length=100' Tc=5.0 min CN=WQ Runoff=2.56 cfs 0.131 af

Link 2L: frontage rd Inflow=2.56 cfs 0.131 af
Primary=2.56 cfs 0.131 af

Total Runoff Area = 0.484 ac Runoff Volume = 0.131 af Average Runoff Depth = 3.24"
87.44% Pervious = 0.423 ac 12.56% Impervious = 0.061 ac

Summary for Subcatchment 1S: all ex site

[49] Hint: Tc<2dt may require smaller dt

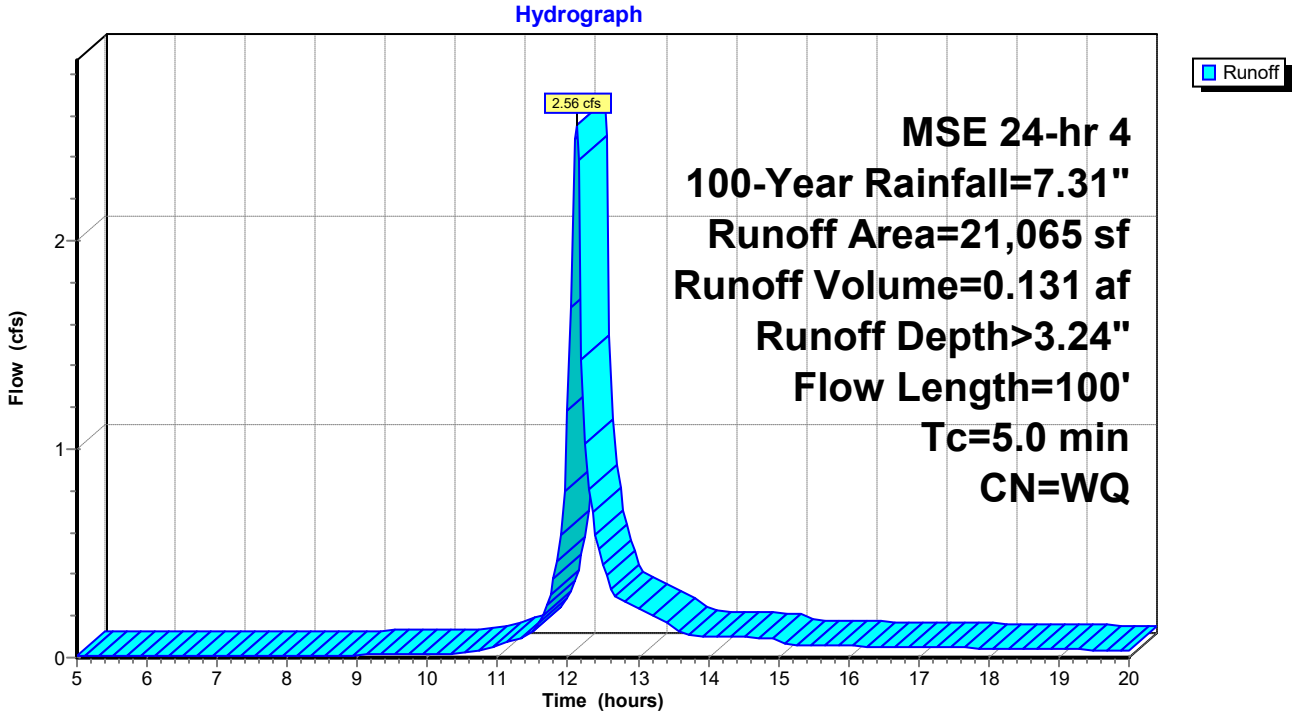
Runoff = 2.56 cfs @ 12.12 hrs, Volume= 0.131 af, Depth> 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 4 100-Year Rainfall=7.31"

	Area (sf)	CN	Description
*	1,855	98	ex AC drive
*	790	98	ex CABC drive
*	18,420	61	grass, HSG B, DNR max
	21,065		Weighted Average
	18,420		87.44% Pervious Area
	2,645		12.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	100		0.33		**Direct Entry, mowed grass**

Subcatchment 1S: all ex site



Hydrograph for Subcatchment 1S: all ex site

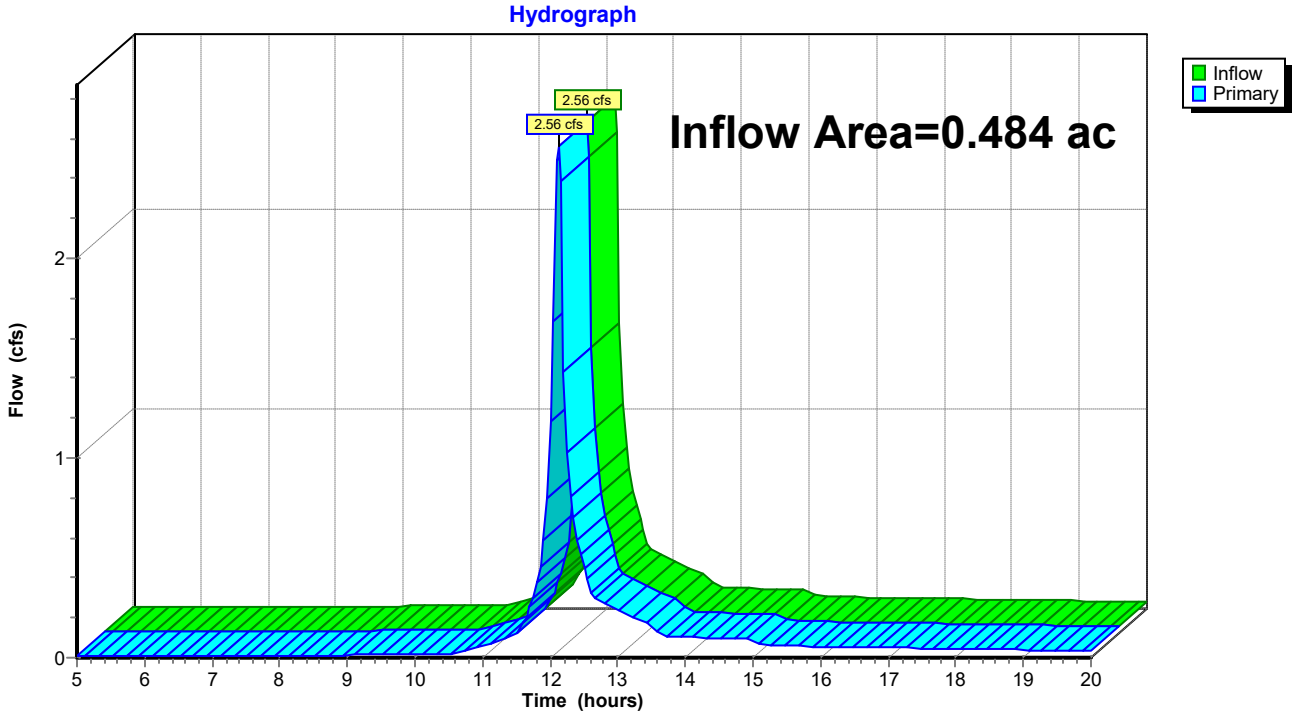
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
5.00	0.34	0.00	0.01
5.25	0.36	0.00	0.01
5.50	0.39	0.00	0.01
5.75	0.42	0.00	0.01
6.00	0.45	0.00	0.01
6.25	0.48	0.00	0.01
6.50	0.51	0.00	0.01
6.75	0.55	0.00	0.01
7.00	0.58	0.00	0.01
7.25	0.61	0.00	0.01
7.50	0.65	0.00	0.01
7.75	0.69	0.00	0.01
8.00	0.72	0.00	0.01
8.25	0.76	0.00	0.01
8.50	0.80	0.00	0.01
8.75	0.84	0.00	0.01
9.00	0.88	0.00	0.01
9.25	0.95	0.00	0.02
9.50	1.02	0.00	0.02
9.75	1.09	0.00	0.02
10.00	1.16	0.00	0.02
10.25	1.23	0.01	0.02
10.50	1.31	0.01	0.02
10.75	1.43	0.03	0.04
11.00	1.58	0.05	0.06
11.25	1.77	0.09	0.09
11.50	1.98	0.15	0.12
11.75	2.40	0.29	0.30
12.00	3.43	0.76	**1.18**
12.25	4.91	1.67	**1.02**
12.50	5.33	1.95	0.45
12.75	5.54	2.11	0.28
13.00	5.73	2.24	0.24
13.25	5.88	2.35	0.20
13.50	6.00	2.44	0.16
13.75	6.08	2.50	0.11
14.00	6.15	2.55	0.10
14.25	6.22	2.61	0.10
14.50	6.29	2.66	0.10
14.75	6.36	2.71	0.09
15.00	6.43	2.76	0.09
15.25	6.47	2.79	0.06
15.50	6.51	2.82	0.06
15.75	6.55	2.85	0.06
16.00	6.59	2.88	0.06
16.25	6.62	2.91	0.05
16.50	6.66	2.94	0.05
16.75	6.70	2.97	0.05
17.00	6.73	2.99	0.05
17.25	6.76	3.02	0.05
17.50	6.80	3.05	0.05
17.75	6.83	3.07	0.05
18.00	6.86	3.10	0.04
18.25	6.89	3.12	0.04
18.50	6.92	3.14	0.04
18.75	6.95	3.16	0.04
19.00	6.97	3.18	0.04
19.25	7.00	3.20	0.04
19.50	7.03	3.22	0.04
19.75	7.05	3.24	0.04
20.00	**7.07**	**3.26**	0.03

Summary for Link 2L: frontage rd

Inflow Area = 0.484 ac, 12.56% Impervious, Inflow Depth > 3.24" for 100-Year event
Inflow = 2.56 cfs @ 12.12 hrs, Volume= 0.131 af
Primary = 2.56 cfs @ 12.12 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 2L: frontage rd



Hydrograph for Link 2L: frontage rd

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.00	0.01	**0.00**	0.01
5.25	0.01	0.00	0.01
5.50	0.01	0.00	0.01
5.75	0.01	0.00	0.01
6.00	0.01	0.00	0.01
6.25	0.01	0.00	0.01
6.50	0.01	0.00	0.01
6.75	0.01	0.00	0.01
7.00	0.01	0.00	0.01
7.25	0.01	0.00	0.01
7.50	0.01	0.00	0.01
7.75	0.01	0.00	0.01
8.00	0.01	0.00	0.01
8.25	0.01	0.00	0.01
8.50	0.01	0.00	0.01
8.75	0.01	0.00	0.01
9.00	0.01	0.00	0.01
9.25	0.02	0.00	0.02
9.50	0.02	0.00	0.02
9.75	0.02	0.00	0.02
10.00	0.02	0.00	0.02
10.25	0.02	0.00	0.02
10.50	0.02	0.00	0.02
10.75	0.04	0.00	0.04
11.00	0.06	0.00	0.06
11.25	0.09	0.00	0.09
11.50	0.12	0.00	0.12
11.75	0.30	0.00	0.30
12.00	**1.18**	0.00	**1.18**
12.25	**1.02**	0.00	**1.02**
12.50	0.45	0.00	0.45
12.75	0.28	0.00	0.28
13.00	0.24	0.00	0.24
13.25	0.20	0.00	0.20
13.50	0.16	0.00	0.16
13.75	0.11	0.00	0.11
14.00	0.10	0.00	0.10
14.25	0.10	0.00	0.10
14.50	0.10	0.00	0.10
14.75	0.09	0.00	0.09
15.00	0.09	0.00	0.09
15.25	0.06	0.00	0.06
15.50	0.06	0.00	0.06
15.75	0.06	0.00	0.06
16.00	0.06	0.00	0.06
16.25	0.05	0.00	0.05
16.50	0.05	0.00	0.05
16.75	0.05	0.00	0.05
17.00	0.05	0.00	0.05
17.25	0.05	0.00	0.05
17.50	0.05	0.00	0.05
17.75	0.05	0.00	0.05
18.00	0.04	0.00	0.04
18.25	0.04	0.00	0.04
18.50	0.04	0.00	0.04
18.75	0.04	0.00	0.04
19.00	0.04	0.00	0.04
19.25	0.04	0.00	0.04
19.50	0.04	0.00	0.04
19.75	0.04	0.00	0.04
20.00	0.03	0.00	0.03

Control Practice 1: Biofilter CP# 1 (DS) - W Biofilter UNLINED
1. Top area (square feet) = 850
2. Bottom aea (square feet) = 325
3. Depth (ft): 4.41
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.03
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 2
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 10
2. Weir crest width (ft): 2
3. Height of datum to bottom of weir opening: 4.4

Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 0.5
2. Stand pipe height above datum (ft): 4.35

Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 1
3. Number of underdrain outlets: 1

Control Practice 2: Biofilter CP# 2 (DS) - E biofilter LINED
1. Top area (square feet) = 800
2. Bottom aea (square feet) = 163
3. Depth (ft): 3.35
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 60
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 8
2. Weir crest width (ft): 2
3. Height of datum to bottom of weir opening: 3.34

Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 0.5
2. Stand pipe height above datum (ft): 3.1

Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 0
3. Number of underdrain outlets: 1

Control Practice 1: Biofilter CP# 1 (DS) - W Biofilter UNLINED
1. Top area (square feet) = 850
2. Bottom aea (square feet) = 325
3. Depth (ft): 4.41
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.03
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 1
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 2
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil
User-Defined Media Type 1.000

Biofilter Outlet/Discharge Characteristics:
Outlet type: Broad Crested Weir
1. Weir crest length (ft): 10
2. Weir crest width (ft): 2
3. Height of datum to bottom of weir opening: 4.4

Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 0.5
2. Stand pipe height above datum (ft): 4.35

Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 1
3. Number of underdrain outlets: 1

Control Practice 2: Biofilter CP# 2 (DS) - E biofilter LINED
1. Top area (square feet) = 800
2. Bottom aea (square feet) = 163
3. Depth (ft): 3.35
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.001
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Soil Data Soil Type Fraction in Eng. Soil
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1. Stand pipe diameter (ft): 0.5
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1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 0
3. Number of underdrain outlets: 1

LIVE WELL CHIROPRACTIC CLINIC NEW BUILDING

PHASE 2 OF STH 16 CLINICS DEVELOPMENT – LA CROSSE

Storm Water Management Plan

APPENDIX D – Operations & Maintenance Plan

OPERATION AND MAINTENANCE PLAN

Live Well Chiropractic Clinic New Building - La Crosse
1822 STH 16 Frontage Road

In accordance with the State of Wisconsin Department of Safety and Professional Services and the Department of Natural Resources, a maintenance plan for the LIVE WELL CHIROPRACTIC CLINIC NEW BUILDING project is detailed below. The intent of this plan is to set forth maintenance procedures to be performed by Angela Frank of Onalaska in order to ensure proper operation of the storm water facilities that are located on the project site. A copy of this plan shall be kept onsite at all times and be available for inspection if requested. Written record of inspection activities and maintenance shall be retained for the life of the facilities discussed in this plan.

1) BIOFILTRATION DEVICES:

A) Accumulated solids or byproduct removal requirements: Practices shall include removal of all trash and excess sediment from within the site's biofiltration devices; periodic removal of sediment may be required to insure proper operation. Repair erosion as necessary on the outer banks of the basins. Remove fall leaves prior to first snow fall. Do not use biofiltration areas for snow storage during winter months. Refrain from using sodium chloride salt-based applications for snow and ice removal on contributing parking and drive areas as this may contribute to quick failure of the device. A calcium chloride salt-based application may be used moderately for snow and ice removal on contributing parking and drive areas.

B) Identification of safety hazards: Verify that the system is operating properly by inspecting after one inch of rain for the first year and then quarterly each succeeding year. If standing water is observed over 50% of the basin floor 3 days after rainfall and the drains are not clogged with debris, the basin is clogged and measures should be undertaken to unclog it. Keep vegetation in check on the downstream side of structure. Maintain embankment downstream of structure.

C) Cleaning and inspection schedule: Note the condition of vegetation at quarterly inspections. Identify and replace ailing vegetation. Replace mulch in void areas as determined during inspections. Check for runoff pooling areas or blockages of flow. Water plants in biofiltration devices during dry conditions. Confirm that irrigation is adequate and not excessive. Application of pesticides and fertilizers shall be minimal. Biological, physical, and cultural controls shall be used prior to chemical pesticide and fertilizer use.

D) Inspection and maintenance checklist:

1) **Filters –** Constructed and Planted Biofiltration Device
2) **Disinfection units -** does not apply to this system
3) **Sedimentation chambers -** does not apply to this system
4) **Detention devices -** does not apply to this system

5) **Drains –** This biofiltration device is equipped with overflow drains that must be inspected and cleaned of debris on a frequent basis to ensure proper operation.
6) **Infiltration systems:**
   (a) Native Vegetation Planting
      (1) Establishment - Immediately after the completion of cell construction, water plant material for 14 consecutive days unless there is sufficient natural rainfall. Bi-weekly weeding will be required for the first one to two years. Carefully remove by hand plants certain to be weeds. Remove entire root of the weedy plants. If chemical weed treatment is required, use the least toxic approach.
      (2) Maintenance
         (i) Mowing: After vegetation establishment, if burning cannot be accommodated, mow the plants to a height of 5 to 6 inches once in the fall (after November 1).
         (ii) Burning: Beginning the second year, burning can occur in the early spring (prior to May 1st) or in the late fall (after November 1st). Burn two consecutive years and then up to three years can pass before the next burning. Do not burn every other year.
      (3) Restoration Procedures
         (i) Twice a year, from March 15th to April 30th and October 1st to November 30th, remove and replace all dead and diseased vegetation considered beyond treatment.
         (ii) Once every 2 to 3 years, in the spring, remove old mulch layer before applying new one.

E) Start up and shutdown procedures: Discourage infiltration of runoff water during winter months. The system should be "off-line" in the winter.

F) Vector control requirements: Abate potential vectors by filling holes in the ground in and around the biofiltration device and by insuring that there are no areas where water stands longer than three days following a storm. If any obstructions develop (e.g. debris accumulation, invasive vegetation, growth of woody or shrubby vegetation, clogging of outlets and/or under drains) within the device, appropriate maintenance activities shall be implemented to correct the obstructions.

G) Contingency plan in the event of system failure: Immediate measures should be employed to sandbag the area and stabilize any lawn areas as soon as possible until the system can be evaluated and reconstructed to plan.

STORM SEWER AND DETENTION SYSTEM:

A) Accumulated solids or byproduct removal requirements

Practices shall include removal of excess sediment from within the site's storm water inlets, conveyance piping, and storage chambers. Note that the storage chambers are a confined access space and special equipment and training are required to enter them.

Periodic removal of sediment will insure proper operation. Also, remove any litter or debris that may obstruct inflow and outflow conditions.

B) Identification of safety hazards

Inspect annually, in the spring, inlet structures to verify they remain installed correctly. This is important for inlets located in pavement areas which may endure heavy traffic and create a hazard if they are not properly seated.

C) Cleaning and inspection schedule

Inspect inlets, piping, and storage chambers annually, in the spring. Observe the system components during rain events to verify the system is operating at top capacity. Identify structures and conveyance piping which may need repair or replacement parts. Remove any debris or litter blocking the inlet structures and pipes. Remove snow and ice from and around inlets to facilitate flow into the system. There are backflow prevention devices and a flow diversion structure installed as part of the project. These should be inspected annually in the spring and after major precipitation events.

D) Inspection and maintenance checklist

a. Filters - does not apply to this site
b. Disinfection units - does not apply to this site
c. Sedimentation chambers - does not apply to this site
d. Detention devices – annually in spring
e. Infiltration systems – does not apply to storm sewer
f. Flow control devices – annually in spring and after major events

E) Start up and shutdown procedures

Not Applicable.

F) Vector control requirements – periodic removal of sediment from the detention tanks will limit the potential for standing water that may attract mosquitoes and other insects.

LIVE WELL CHIROPRACTIC CLINIC NEW BUILDING

PHASE 2 OF STH 16 CLINICS DEVELOPMENT – LA CROSSE

Storm Water Management Plan

APPENDIX E – Long Term Maintenance Agreement (Draft)

DECLARATION OF CONDITIONS, COVENANTS AND RESTRICTIONS FOR MAINTENANCE OF STORMWATER MANAGEMENT MEASURES

This space is reserved for recording data

Return to:

City of La Crosse
Engineering Department
400 La Crosse Street
La Crosse, Wisconsin 54601

Tax Parcel No.: 17-10460-110

RECITALS:

A. Angela Frank, is the owner of Live Well Chiropractic Clinic Building, which has stormwater management structures constructed on the property that is more particularly described on Exhibit A attached hereto ("Property").

B. Owner desires to construct stormwater management structures on the Property in accordance with certain plans and specifications approved by the City.

C. The City requires Owners to record this Declaration regarding maintenance of stormwater management measures to be located on the Property. Owners agree to maintain the stormwater management measures and to grant to the City the rights set forth below.

NOW, THEREFORE, in consideration of the declarations herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the owners agree as follows:

1. Maintenance. Owners and their successors and assigns shall be responsible to repair and maintain the stormwater management measures located on the Property in good condition and in working order and such that the measures comply with the approved plans on file with the City Engineer. Said maintenance shall be at the Owner's sole cost and expense. Owners will conduct such maintenance or repair work in accordance with all applicable laws, codes, regulations, and similar requirements, and pursuant to the Maintenance Provisions attached hereto as Exhibit B.

2. Easement to City. If Owners fail to maintain the stormwater management measures as required in Section 1, then City shall have the right, after providing Owners with written notice of the maintenance issue ("Maintenance Notice") and thirty (30) days to comply with the City's maintenance request, to enter the Property in order to conduct the maintenance specified in the Maintenance Notice. City will conduct such maintenance work in accordance with all applicable laws, codes, regulations, and similar requirements and will not unreasonably interfere with Owner's use of the Property. All costs and expenses incurred by the City in conducting such maintenance may be charged to the owner of the Property by placing the amount on the tax roll for the Property as a special charge in accordance with Section 66.0627, Wis. Stats.

3. Term/Termination. The term of this Agreement shall commence on the date that this Agreement is filed of record with the Register of Deeds Office for La Crosse County, Wisconsin, and except as otherwise herein specifically provided, shall continue in perpetuity. Notwithstanding the foregoing, this Agreement may be terminated by recording with the Register of Deeds Office for La Crosse County, Wisconsin, a written instrument of termination signed by the City and all of the then-owners of the Property.

4. Miscellaneous.

(a) Notices. Any notice, request or demand required or permitted under this Agreement shall be in writing and shall be deemed given when personally served or three (3) days after the same has been deposited with the United States Post Office, registered or certified mail, return receipt requested, postage prepaid and addressed as follows:

If to Owners:
Dr. Angela Frank
Live Well Chiropractic Clinic
1810 Pine Ridge Dr.
Onalaska, WI 54650

If to City:
City of La Crosse
Engineering Department
400 La Crosse Street
La Crosse, WI 54601
Attention: City Engineer

Any party may change its address for the receipt of notice by written notice to the other.

(b) Governing Law. This Agreement shall be governed and construed in accordance with the laws of the State of Wisconsin.

(c) Amendments or Further Agreements to be in Writing. This Agreement may not be modified in whole or in part unless such agreement is in writing and signed by all parties bound hereby.

(d) Covenants Running with the Land. All of the easements, restrictions, covenants and agreements set forth in this Agreement are intended to be and shall be construed as covenants running with the land, binding upon, inuring to the benefit of, and enforceable by the parties hereto and their respective successors and assigns.

(e) Partial Invalidity. If any provisions, or portions thereof, of this Agreement or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Agreement, or the application of such provision, or portion thereof, to any other persons or circumstances shall not be affected thereby and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of October, 2025.

X_____ Date_____
Angela Frank

STATE OF WISCONSIN)
COUNTY OF LA CROSSE) SS

Personally came before me this _____ day of _____, 20_____, the above named _____, to me known to be the person(s) who executed the foregoing instrument and acknowledged the same.

_____
NOTARY PUBLIC

My Commission Expires:_____

Drafted by: City of La Crosse
Engineering Department
400 La Crosse Street
La Crosse, Wisconsin 54601

EXHIBIT A
Legal Description

Angela Frank parcel 17-10460-110 @ 1822 STH 16 Frontage Road

LEGAL DESCRIPTION:

Part of government lot 7 of Section 21, Township 16 North, Range 7 West, City of La Crosse, La Crosse County, Wisconsin further described as follows:

Cold Springs Addition lots 12 and 13 of block 2, lot 20 of block 3 and the west half of the vacated alley adjacent to said lots 12 and 13 of block 2 and lot 20 of block 3, except for the part taken for highway purposes.

The above described lands contain 21,999 square feet, or 0.50 acres, as surveyed. The above described lands are subject to all covenants, restrictions and easements, implied or recorded.

EXHIBIT B
Maintenance Provisions

Operation and Maintenance Plan
Construction plan sheet C100
Construction plan sheet C400

OPERATION AND MAINTENANCE PLAN

Live Well Chiropractic Clinic New Building - La Crosse
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f. Flow control devices – annually in spring and after major events

E) Start up and shutdown procedures

Not Applicable.

F) Vector control requirements – periodic removal of sediment from the detention tanks will limit the potential for standing water that may attract mosquitoes and other insects.

SITE NOTES

-The location of existing utilities, both underground and overhead are approximate only and have not been independently verified by the owner or its representatives. The contractor shall be responsible for determining the exact location of all existing utilities, whether shown on these plans or not, before commencing work, and shall be fully responsible for any and all damages which might be caused by the contractor's failure to exactly locate and preserve any and all utilities. CALL DIGGERS HOTLINE (800) 242-8511

-The underground locations of the Public Utilities were marked by representatives of those companies. The locations of the privately owned underground utilities were not marked.

-There may be more underground utility installations within the project area that are not shown.

-It shall be the contractors responsibility to arrange for any necessary inspections by local government that may be required.

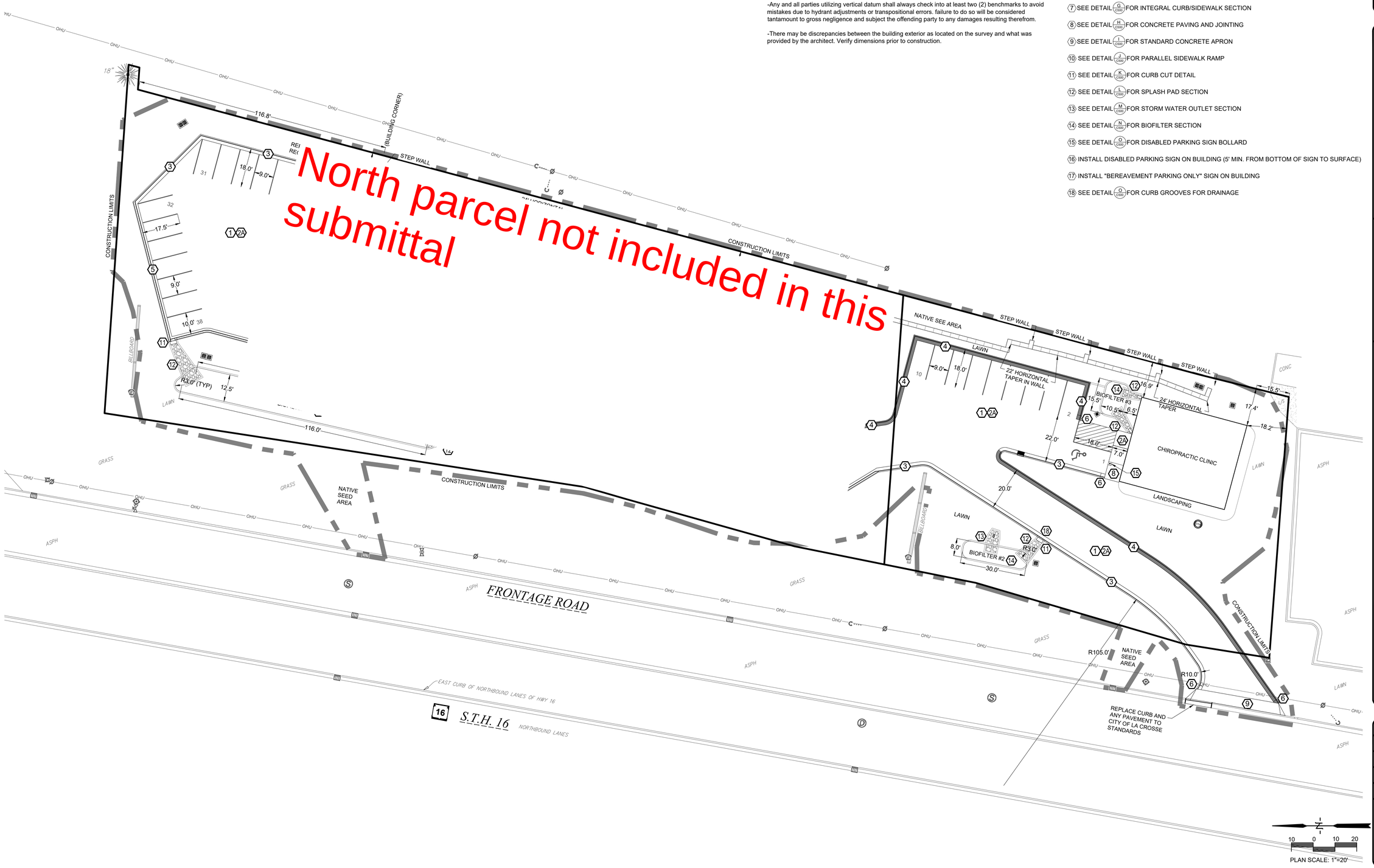
-Any and all parties utilizing vertical datum shall always check into at least two (2) benchmarks to avoid mistakes due to hydrant adjustments or transpositional errors. failure to do so will be considered tantamount to gross negligence and subject the offending party to any damages resulting therefrom.

-There may be discrepancies between the building exterior as located on the survey and what was provided by the architect. Verify dimensions prior to construction.

SITE NOTES

1. SEE DETAIL A/C100 FOR ASPHALT PAVEMENT
2A. SEE DETAIL B/C100 FOR CONCRETE PAVEMENT - TYPE 1
2B. SEE DETAIL B/C100 FOR CONCRETE PAVEMENT - TYPE 2
3. SEE DETAIL C/C100 FOR TYPICAL 24" CURB AND GUTTER SECTION
4. SEE DETAIL D/C100 FOR 24" CURB AND GUTTER SECTION - REVERSE SLOPE
5. SEE DETAIL E/C100 FOR TYPICAL 24" MOUNTABLE CURB & GUTTER
6. SEE DETAIL F/C100 FOR END SECTION CURB AND GUTTER
7. SEE DETAIL G/C100 FOR INTEGRAL CURB/SIDEWALK SECTION
8. SEE DETAIL H/C100 FOR CONCRETE PAVING AND JOINTING
9. SEE DETAIL I/C100 FOR STANDARD CONCRETE APRON
10. SEE DETAIL J/C100 FOR PARALLEL SIDEWALK RAMP
11. SEE DETAIL K/C100 FOR CURB CUT DETAIL
12. SEE DETAIL L/C100 FOR SPLASH PAD SECTION
13. SEE DETAIL M/C100 FOR STORM WATER OUTLET SECTION
14. SEE DETAIL N/C100 FOR BIOFILTER SECTION
15. SEE DETAIL O/C100 FOR DISABLED PARKING SIGN BOLLARD
16. INSTALL DISABLED PARKING SIGN ON BUILDING (5' MIN. FROM BOTTOM OF SIGN TO SURFACE)
17. INSTALL "BEREAVEMENT PARKING ONLY" SIGN ON BUILDING
18. SEE DETAIL O/C100 FOR CURB GROOVES FOR DRAINAGE

North parcel not included in this submittal



10 0 10 20

PLAN SCALE: 1"=20'

REVISIONS	BY

PARAGON ASSOCIATES
Environmental Design & Consulting
CIVIL ENGINEERING . LANDSCAPE ARCHITECTURE . SURVEYING
632 COPELAND AVENUE . LA CROSSE, WI 54603
Tel.608.781.3110 Fax.608.781.3197 Paragon-Assoc.biz

PREPARED FOR:
DALE JACOBSON

HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
SITE PLAN

DRAWN	C.G.
PROJECT No	25-089
DATE	10/06/2025
SCALE	1"=20'
CAD FILE	25-089 La Crosse Vet 06.DWG
SHEET	C100

UTILITY NOTES

ALL WATER & SEWER (STORM & SANITARY) CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF "STANDARD SPECIFICATIONS FOR SEWER & WATER IN THE STATE OF WISCONSIN," ALONG WITH THE CITY OF LA CROSSE STANDARD SPECIFICATIONS, AS APPROPRIATE.

ALL WATER & SANITARY LATERALS SHALL HAVE A MINIMUM DEPTH 6' BELOW FINISHED FLOOR ELEVATIONS. THE CONTRACTOR IS TO COORDINATE ACTIVITIES & CONFIRM LOCATION & ELEVATION OF SERVICES WITH THE ENGINEER.

USE C.L.D.I.P. FOR ALL WATER MAIN.

ALL WATER MAINS SHALL HAVE A MINIMUM OF 7.5' OF COVER.

SUITABLE ON-SITE GRANULAR MATERIAL SHALL BE USED FOR TRENCH BACKFILL TO PROPOSED ELEVATIONS. BACKFILL SHALL BE COMPACTED AS SPECIFIED.

ALL EXISTING INVERTS & LOCATIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION. ALL DISCREPANCIES FROM INFORMATION SHOWN ON THE PLANS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.

CONTRACTOR SHALL IDENTIFY & MARK THE EXACT LOCATIONS OF ALL UNDERGROUND CONNECTIONS TO WATER AND SEWER MAINS, BENDS, CURB BOXES, CLEAN OUTS, ETC. ON THE AS-BUILT PLANS. COPIES OF THESE DOCUMENTS SHALL BE DELIVERED TO THE ENGINEER FOR RECORD.

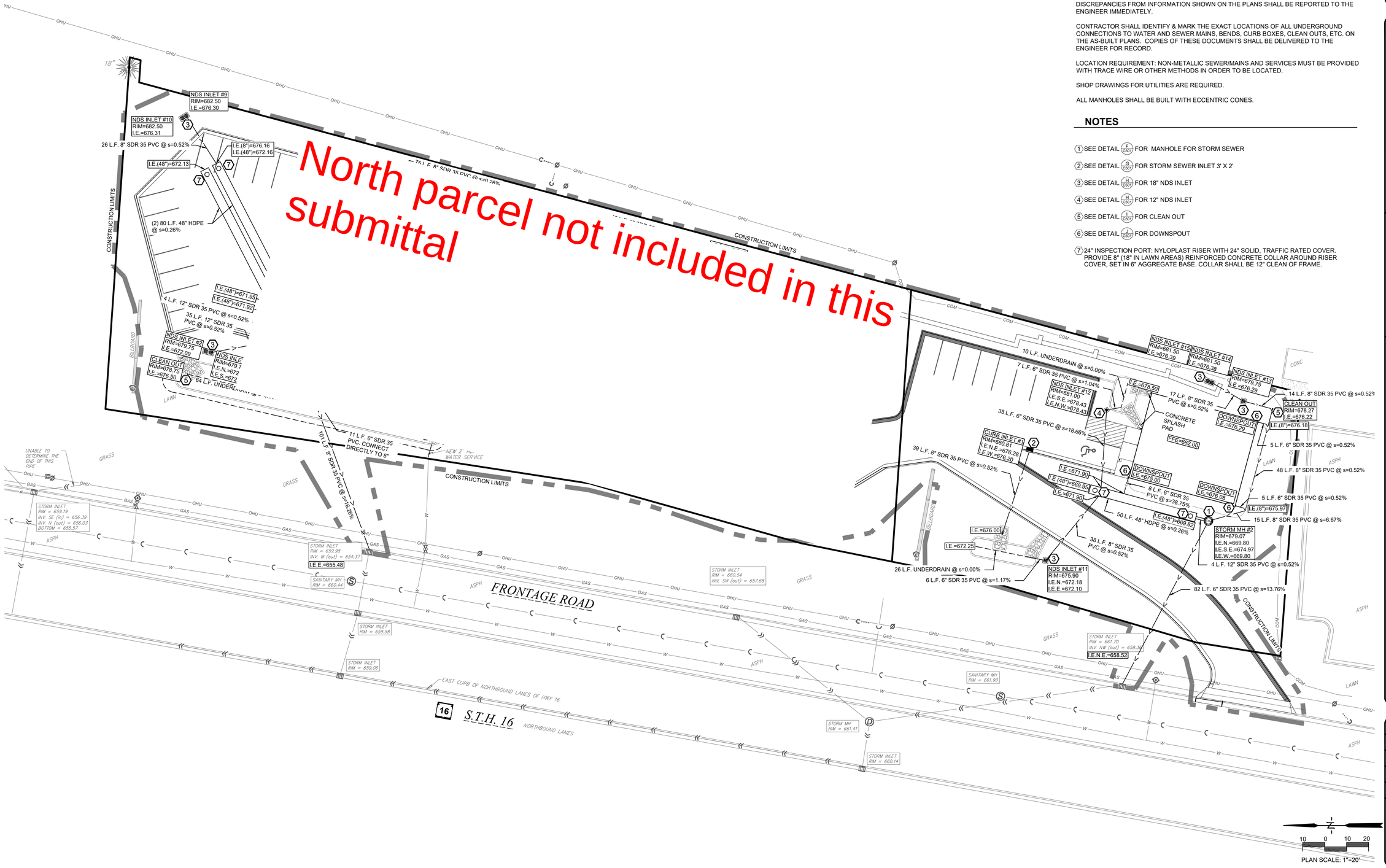
LOCATION REQUIREMENT: NON-METALLIC SEWER/MAINS AND SERVICES MUST BE PROVIDED WITH TRACE WIRE OR OTHER METHODS IN ORDER TO BE LOCATED.

SHOP DRAWINGS FOR UTILITIES ARE REQUIRED.

ALL MANHOLES SHALL BE BUILT WITH ECCENTRIC CONES.

NOTES

1. SEE DETAIL F/C607 FOR MANHOLE FOR STORM SEWER
2. SEE DETAIL G/C607 FOR STORM SEWER INLET 3' X 2'
3. SEE DETAIL H/C607 FOR 18" NDS INLET
4. SEE DETAIL H/C607 FOR 12" NDS INLET
5. SEE DETAIL I/C607 FOR CLEAN OUT
6. SEE DETAIL J/C607 FOR DOWNSPOUT
7. 24" INSPECTION PORT: NYLOPLAST RISER WITH 24" SOLID, TRAFFIC RATED COVER. PROVIDE 8" (18" IN LAWN AREAS) REINFORCED CONCRETE COLLAR AROUND RISER COVER, SET IN 6" AGGREGATE BASE. COLLAR SHALL BE 12" CLEAN OF FRAME.



REVISIONS	BY

PARAGON ASSOCIATES
Environmental Design & Consulting
CIVIL ENGINEERING . LANDSCAPE ARCHITECTURE . SURVEYING
632 COPELAND AVENUE . LA CROSSE, WI 54603
Tel.608.781.3110 Fax.608.781.3197 Paragon-Assoc.biz

PREPARED FOR:
DALE JACOBSON

HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
UTILITY PLAN

DRAWN	C.G.
PROJECT No	25-089
DATE	10/09/2025
SCALE	1"=20'
CAD FILE	25-089 La Crosse Vet 05.DWG
SHEET	C400

LIVE WELL CHIROPRACTIC CLINIC NEW BUILDING

PHASE 2 OF STH 16 CLINICS DEVELOPMENT – LA CROSSE

Storm Water Management Plan

APPENDIX F – Universal Soil Loss Equation Results

Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Official Version 1.0 (05-15-2015)

WISCONSIN DEPT. OF NATURAL RESOURCES

YEAR 1

Developer: Angela Frank

Project: Live Well Chiropractic Clinic New Building - 1822 STH 16, La Crosse

Date: 10/13/2025

County: La Crosse

Version 1.0

Activity	Begin Date	End Date	Period % R	Annual R Factor	Sub Soil Texture	Soil Erodibility K Factor	Slope (%)	Slope Length (feet)	LS Factor	Land Cover C Factor	Soil loss A (tons/acre)	Sediment Control Practice	Sediment Discharge (tons/acre)
Bare Ground	12/1/2025	4/15/2026	6.9%	160	Silt Loam	0.43	10.0%	125	1.54	1.00	7.4	Silt Fence	3.7
Seed with Mulch or Er	4/15/2026	9/30/2026	84.8%	160	Silt Loam	0.43	10.0%	125	1.54	0.10	9.0	Sediment Basin	0.0
End	9/30/2026	-----	-----	-----	-------	-----	10.0%	125	1.54	------	-----	Sediment Basin	0.0
		-----	-----	-----	-------	-----	10.0%	125	1.54	-----	-----		0.0
		-----	-----	-----	-------	-----	10.0%	0	-----	-----	-----		0.0
		-----	-----	-----	-------	-----	0.0%	0	-----	-----	-----		0.0
										TOTAL	**16.3**	**TOTAL**	**3.7**
												% Reduction Required	**NONE**

Notes:

See Help Page for further descriptions of variables and items in drop-down boxes.
The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.
For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

Recommended Permanent Seeding Dates:

4/15-6/1 Thaw-6/30	and	8/1-8/21	Turf, introduced grasses and legumes Native Grasses, forbs, and legumes

Designed By:	Robert Haines
Date	10/1/2025

F:\Engineering\Engineering Dwg\2025\25-089 Hwy 16 Clinics -Dale Jacobson\Storm\permits\DNR NOI\Frank LW Chiro\LW Chiro soilLossSedimentDischargeCalculationTool

CONSTRUCTION BULLETIN #1
- GRADING CHANGE AROUND BIOFILTER #2

CONSTRUCTION BULLETIN #5
- GRADING CHANGE WHERE PARALLEL PARKING WAS REPLACED WITH PERPENDICULAR PARKING (AND RETAINING WALL)

GRADING NOTES

-CONTOURS SHOWN ARE FOR FINISHED SURFACES, ANY ADJUSTMENT TO SUBGRADE IS THE CONTRACTOR'S RESPONSIBILITY.

-ALL DISTURBED AREAS THAT ARE UNPAVED ARE TO BE LANDSCAPED OR HAVE LAWN ESTABLISHED AS INDICATED ON THE EROSION CONTROL AND LANDSCAPE PLANS.

-ALL LANDSCAPED OR LAWN AREAS SHALL HAVE A MINIMUM OF 6" OF TOPSOIL.

-SPOT ELEVATIONS SHALL TAKE PRECEDENCE OVER CONTOURS AND SLOPES SHOWN. HOWEVER, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF SPOT ELEVATIONS DO NOT APPEAR TO AGREE WITH THE CONTOURS AND SLOPES LABELED. SPOT ELEVATIONS AND SPECIFIC PROFILE INFORMATION SHALL BE USED FOR ESTABLISHING THE ELEVATION OF CURBS, DRIVEWAYS, AND OTHER UTILITIES.

-ALL FINISHED GRADING SHALL PROVIDE FOR A SMOOTH TRANSITION TO UNGRADED AREAS.

-ALL PVC STORM SEWER PIPING SHALL BE MINIMUM SDR 35

REVISIONS	DATE
CONSTRUCTION BULLETIN #1	10/23/25
CONSTRUCTION BULLETIN #5	02/10/26

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HIGHWAY 16 CLINICS
STATE ROAD 16
LA CROSSE, WISCONSIN
GRADING PLAN

North parcel not included in this submittal

Amended Live Well Chiropractic Clinic
Grading Plan
March '26

interceptor berm
retain wall to biocell 220SF = 6.8gpm
lawn to curb 1 1560SF = 15gpm
retain wall to curb 1 100SF = 3.1gpm
biocell media + flume 210SF = 2gpm
lawn to inlets 550SF = 5.3gpm
lawn to inlet 500SF = 4.8gpm
drainage area boundary
parking to curb 1 3200SF = 98.5gpm
roof to biocell 625SF = 24gpm
roof to UG storage 1190SF = 45.8gpm
roof to UG storage 625SF = 24gpm
drive to biocell 2001SF = 61.5gpm
parking + retain wall to biocell 230SF = 7.1gpm
landscape to biocell 200SF = 1.9gpm
lawn to biocell 1600SF = 15.4gpm
biocell media + flumes 460SF = 4.4gpm
CONSTRUCTION LIMITS
EDGING=678.75
TOP OF BERM=680.25
AREA OF OVERTOPPING
BM TNH EL = 663.67
BM TNH EL = 665.74
MATCH (662.36) (661.90)
FRONTAGE ROAD
S.T.H. 16
NORTHBOUND LANES
EAST CURB OF NORTHBOUND LANES OF HWY 16
SWALE
SLOPE
MEDIA=680.50 EDGING=680.75
MEDIA=674.75 EDGING=675.00
FFE=682.00
CONC
ASPH
LAWN

DRAWN	C.G.
PROJECT No	25-089
DATE	02/12/2026
SCALE	1"=20'
CAD FILE	25-089 La Crosse Vet 10.dwg
SHEET	C200

10 0 10 20
PLAN SCALE: 1"=20'

CONSTRUCTION BULLETIN #1
- NDS INLET #12 RIM ELEVATION CHANGE
- NDS INLET #11 RIM ELEVATION CHANGE
- BIOFILTER #2 SIZE CHANGE AND CORRESPONDING PIPE LENGTHS

CONSTRUCTION BULLETIN #2
- NDS INLET #1 CONNECTS TO 48" PIPE (AND CHANGE IN 12" PIPE LENGTH)
- INVERT CHANGES TO NDS INLETS #1 & #2 AND STORM MH #1
- NDS INLET #13 AND DOWNSPOUTS CONNECT TO 48" PIPE (AND CORRESPONDING PIPE LENGTHS)
- INVERT CHANGES TO STORM MH #2
- ADD HEX NOTE #8

CONSTRUCTION BULLETIN #4
- ADD HEX NOTE #9

CONSTRUCTION BULLETIN #5
- UNDERGROUND STORAGE SYSTEM ON SOUTH SITE SHIFTED SOUTHWEST TO ACCOMMODATE INCREASED SIZE OF BUILDING. INVERTS AND PIPE LENGTHS ADJUSTED FOR NEW LOCATION OF SYSTEM.

UTILITY NOTES

ALL WATER & SEWER (STORM & SANITARY) CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF "STANDARD SPECIFICATIONS FOR SEWER & WATER IN THE STATE OF WISCONSIN," ALONG WITH THE CITY OF LA CROSSE STANDARD SPECIFICATIONS, AS APPROPRIATE.

ALL WATER & SANITARY LATERALS SHALL HAVE A MINIMUM DEPTH 6' BELOW FINISHED FLOOR ELEVATIONS. THE CONTRACTOR IS TO COORDINATE ACTIVITIES & CONFIRM LOCATION & ELEVATION OF SERVICES WITH THE ENGINEER.

USE C.L.D.I.P. FOR ALL WATER MAIN.

ALL WATER MAINS SHALL HAVE A MINIMUM OF 7.5' OF COVER.

SUITABLE ON-SITE GRANULAR MATERIAL SHALL BE USED FOR TRENCH BACKFILL TO PROPOSED ELEVATIONS. BACKFILL SHALL BE COMPACTED AS SPECIFIED.

ALL EXISTING INVERTS & LOCATIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION. ALL DISCREPANCIES FROM INFORMATION SHOWN ON THE PLANS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.

CONTRACTOR SHALL IDENTIFY & MARK THE EXACT LOCATIONS OF ALL UNDERGROUND CONNECTIONS TO WATER AND SEWER MAINS, BENDS, CURB BOXES, CLEAN OUTS, ETC. ON THE AS-BUILT PLANS. COPIES OF THESE DOCUMENTS SHALL BE DELIVERED TO THE ENGINEER FOR RECORD.

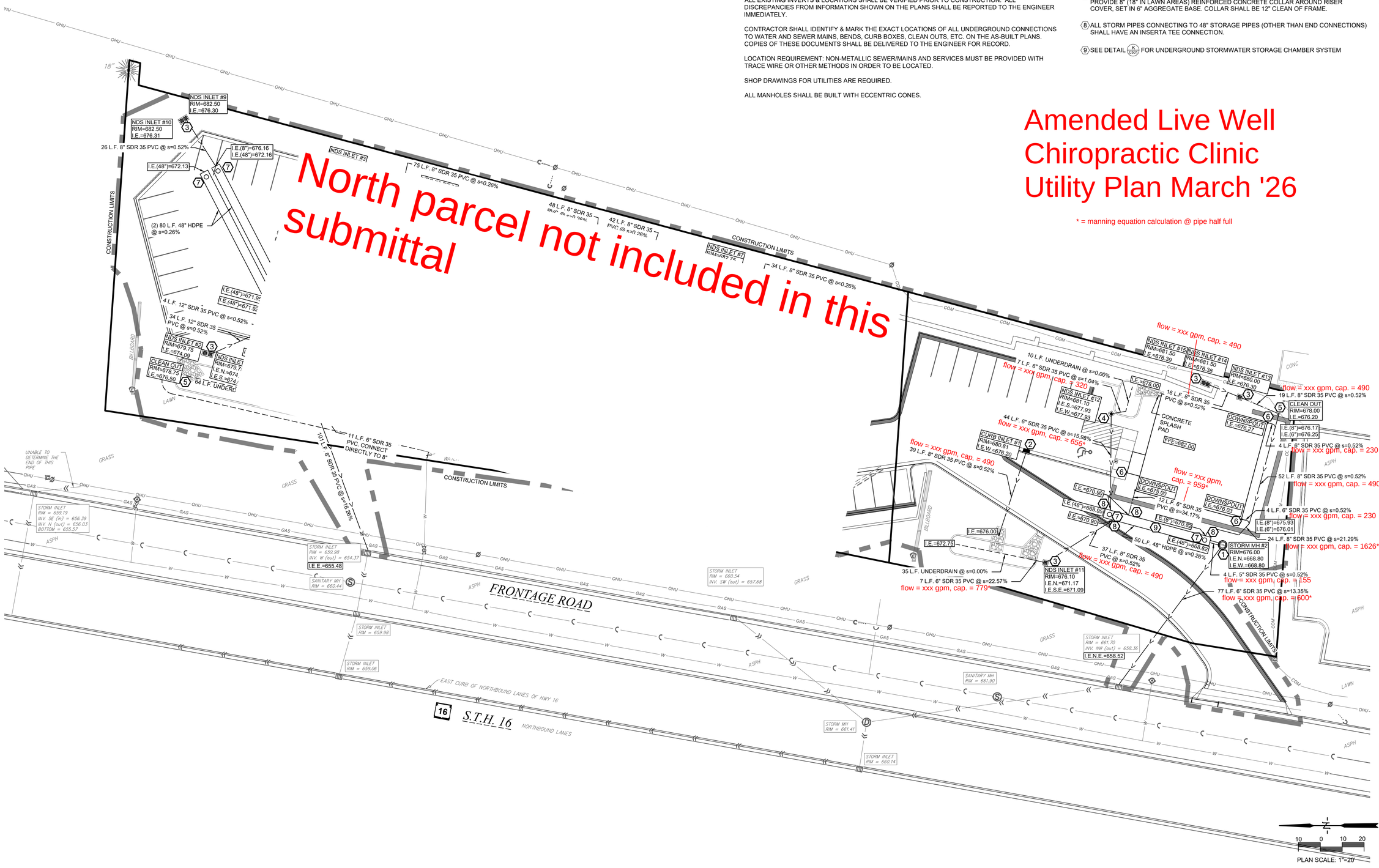
LOCATION REQUIREMENT: NON-METALLIC SEWER/MAINS AND SERVICES MUST BE PROVIDED WITH TRACE WIRE OR OTHER METHODS IN ORDER TO BE LOCATED.

SHOP DRAWINGS FOR UTILITIES ARE REQUIRED.

ALL MANHOLES SHALL BE BUILT WITH ECCENTRIC CONES.

NOTES

1. SEE DETAIL (F, C507) FOR MANHOLE FOR STORM SEWER
2. SEE DETAIL (S, C507) FOR STORM SEWER INLET 3' X 2'
3. SEE DETAIL (H, C507) FOR 18" NDS INLET
4. SEE DETAIL (H, C507) FOR 12" NDS INLET
5. SEE DETAIL (C, C507) FOR CLEAN OUT
6. SEE DETAIL (D, C507) FOR DOWNSPOUT
7. 24" INSPECTION PORT: NYLOPLAST RISER WITH 24" SOLID, TRAFFIC RATED COVER. PROVIDE 8" (18" IN LAWN AREAS) REINFORCED CONCRETE COLLAR AROUND RISER COVER, SET IN 6" AGGREGATE BASE. COLLAR SHALL BE 12" CLEAN OF FRAME.
8. ALL STORM PIPES CONNECTING TO 48" STORAGE PIPES (OTHER THAN END CONNECTIONS) SHALL HAVE AN INSERTA TEE CONNECTION.
9. SEE DETAIL (K, C507) FOR UNDERGROUND STORMWATER STORAGE CHAMBER SYSTEM



Amended Live Well Chiropractic Clinic Utility Plan March '26

North parcel not included in this submittal

* = manning equation calculation @ pipe half full

REVISIONS	DATE
CONSTRUCTION BULLETIN #1	10/23/25
CONSTRUCTION BULLETIN #2	10/28/25
CONSTRUCTION BULLETIN #4	12/16/25
CONSTRUCTION BULLETIN #5	02/10/26

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SHEET	C400

City of La Crosse, Wisconsin

City Hall
400 La Crosse Street
La Crosse, WI 54601

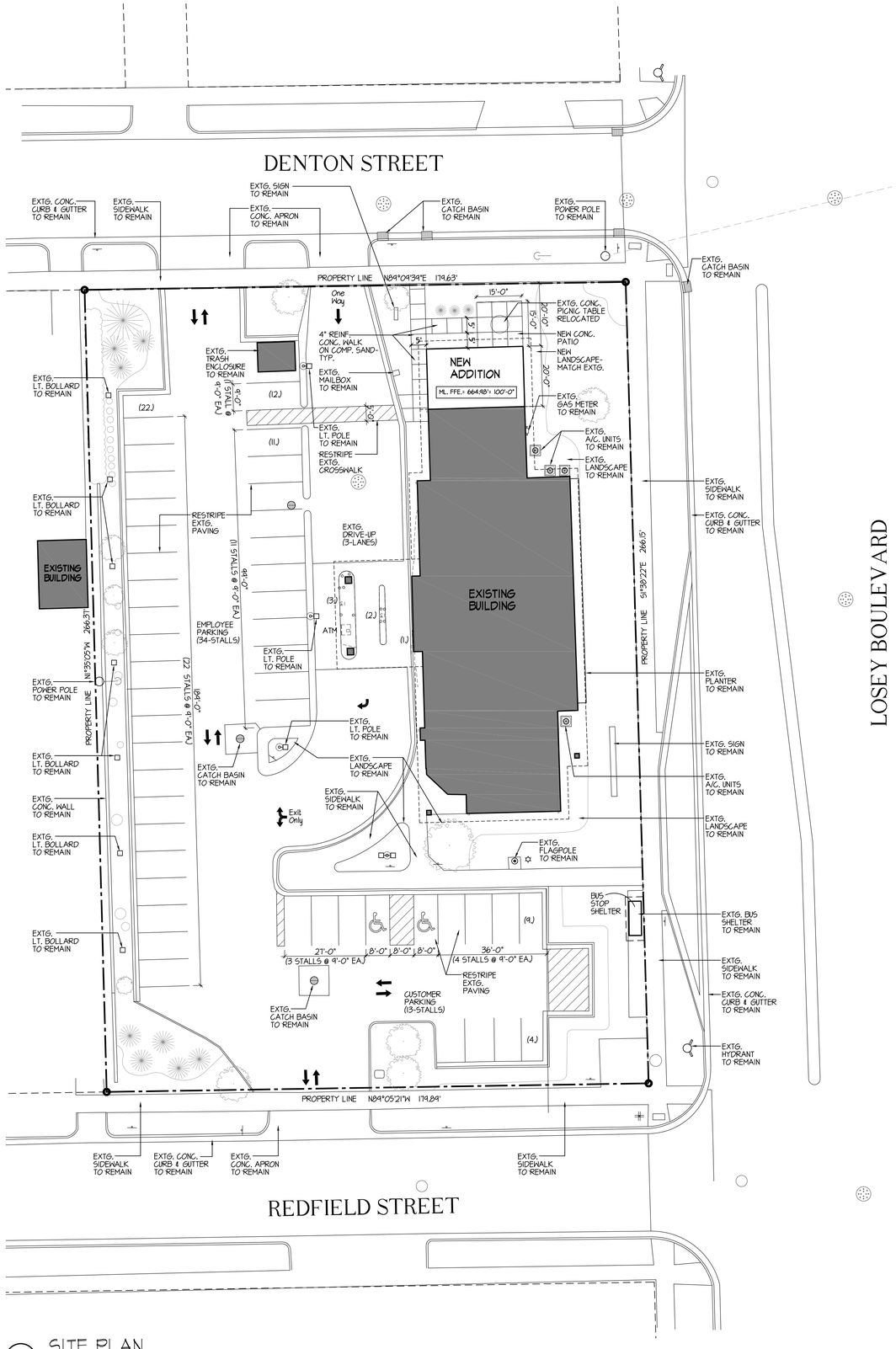
Text File

File Number: 26-0299

Agenda Date: 3/20/2026 **Version:** 1 **Status:** Agenda Ready

In Control: Commercial/Multi-Family Design Review Committee **File Type:** Review of Plans

Agenda Number: 2.



1 A1.1 SITE PLAN
1"=20'-0"

HTG architects
www.htg-architects.com
Minneapolis Bismarck
1010 Main Street, Suite 100
Hopkins, Minnesota 55343
Tel: 952.278.8880

PROJECT

COULEE BANK

ADDITION / REMODELING

1516 LOSEY BLVD. S.
LA CROSSE, WI

ISSUED SET
REVISIONS

DATE	NO.	

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF WISCONSIN

REG. NO. DATE

SITE PLAN

DRAWN BY: HLH. CHECKED BY: RES.

A1.1

251101 SI-251101

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SI-251101.dwg Feb 16, 2026 - 12:05pm

ROOM FINISH SCHEDULE - LOWER LEVEL

ROOM NAME	NO.	FLOOR						BASE				WALL				CEILING						REMARKS
		CONCRETE (SEALED)	CARPET	CERAMIC TILE	RESILIENT FLOORING	WALK-OFF CARPET	NO WORK.	CERAMIC TILE	4" VINYL	SCHLUTER COVE BASE TRIM	NO WORK.	GYP. BD. (PAINT)	CERAMIC TILE	1X6 WOOD PLANKS	NO WORK.	PAINT/GYP.BD.	ACT TYPE I	ACT TYPE 2 (4'x4')	1X6 WOOD PLANK	EXPOSED STRUCTURE	NO WORK.	
STAIR 'A'	01				●				●			●									●	-
HALL	02		●						●			●										
OFFICE	03		●						●			●										
OFFICE	04		●						●			●										
OFFICE	05		●						●			●										
OPEN OFFICE	06		●						●			●										
I.T. ROOM	07					●					●				●						●	
OFFICE	08		●						●			●										
OFFICE	09		●						●			●										
HALL	10		●						●			●										
OFFICE	11		●						●			●										
ELECTRICAL ROOM	12					●					●				●						●	
JANITOR CLOSET	13					●					●				●						●	
STAIR 'B'	14				●				●			●									●	
WORK ROOM	15		●						●			●										
MECHANICAL ROOM	16					●					●				●						●	
OFFICE	17		●						●			●										
OFFICE	18		●						●			●										
HALL	19		●						●			●										
OFFICE	20		●						●			●										
OFFICE	21		●						●			●										
OFFICE	22		●						●			●										
OFFICE	23		●						●			●										
HALL	24		●						●			●										
ELEVATOR EQUIPMENT ROOM	25					●					●				●						●	
MECHANICAL ROOM	26					●					●				●						●	
CONFERENCE ROOM	27					●					●				●						●	
UNISEX RESTROOM	28			●						●			●									
UNISEX RESTROOM	29			●						●			●									
STORAGE ROOM	30					●					●				●						●	

1. EXTEND WALLS UP TO DECK.
2. PROVIDE WALLS w/ SOUND BATT. INSULATION.
3. INSTALL 5'-7" H. VFY. CERAMIC TILE WAINSCOT w/ PAINT FINISH ABOVE (SEE 3 & 4/A2.3).
4. PROVIDE SHELF & MOP HOLDER ABOVE SLOP SINK- MOUNT TOP OF SHELF @ 72" AFF.
5. INSTALL 4'-0" H. FIBERGLASS PANEL WAINSCOT ON SOUTH & EAST WALL @ MOP SINK.
6. PROVIDE 6'-0" W. x 8'-0" L. RECESSED FLOOR MAT FOR WALK-OFF CARPET TILE.

DOOR SCHEDULE - LOWER LEVEL

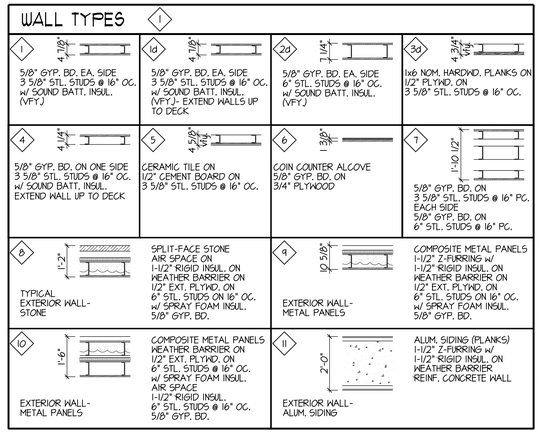
DOOR#	DOOR SIZE	DOOR		FRAME		RATE	HARDWARE GROUP	NOTES
		MATL	TYPE	MATL	TYPE			
01	EXTG. TO REMAIN	-	-	-	-			
03	4'-0"x8'-0"x1/2"	GL.	-	-	-			
04	4'-0"x8'-0"x1/2"	GL.	-	-	-			
05	4'-0"x8'-0"x1/2"	GL.	-	-	-			
07	EXTG. TO REMAIN	-	-	-	-			
08	4'-0"x8'-0"x1/2"	GL.	-	-	-			
09	4'-0"x8'-0"x1/2"	GL.	-	-	-			
11	4'-0"x8'-0"x1/2"	GL.	-	-	-			
12	EXTG. TO REMAIN	-	-	-	-			
13	EXTG. TO REMAIN	-	-	-	-			
16	EXTG. TO REMAIN	-	-	-	-			
17A	3'-0"x8'-0"x1/2"	GL.	-	-	-			
17B	3'-0"x8'-0"x1/2"	GL.	-	-	-			
18	4'-0"x8'-0"x1/2"	GL.	-	-	-			
20	4'-0"x8'-0"x1/2"	GL.	-	-	-			
21	4'-0"x8'-0"x1/2"	GL.	-	-	-			
22	4'-0"x8'-0"x1/2"	GL.	-	-	-			
23	3'-0"x8'-0"x1/2"	GL.	-	-	-			
25	EXTG. TO REMAIN	-	-	-	-			
26	EXTG. TO REMAIN	-	-	-	-			
27	EXTG. TO REMAIN	-	-	-	-			
28	3'-0"x7'-0"x1-3/4"	WD.	-	HM.	-		-	-
29	EXTG. TO REMAIN	-	-	-	-			
30	EXTG. TO REMAIN	-	-	-	-			

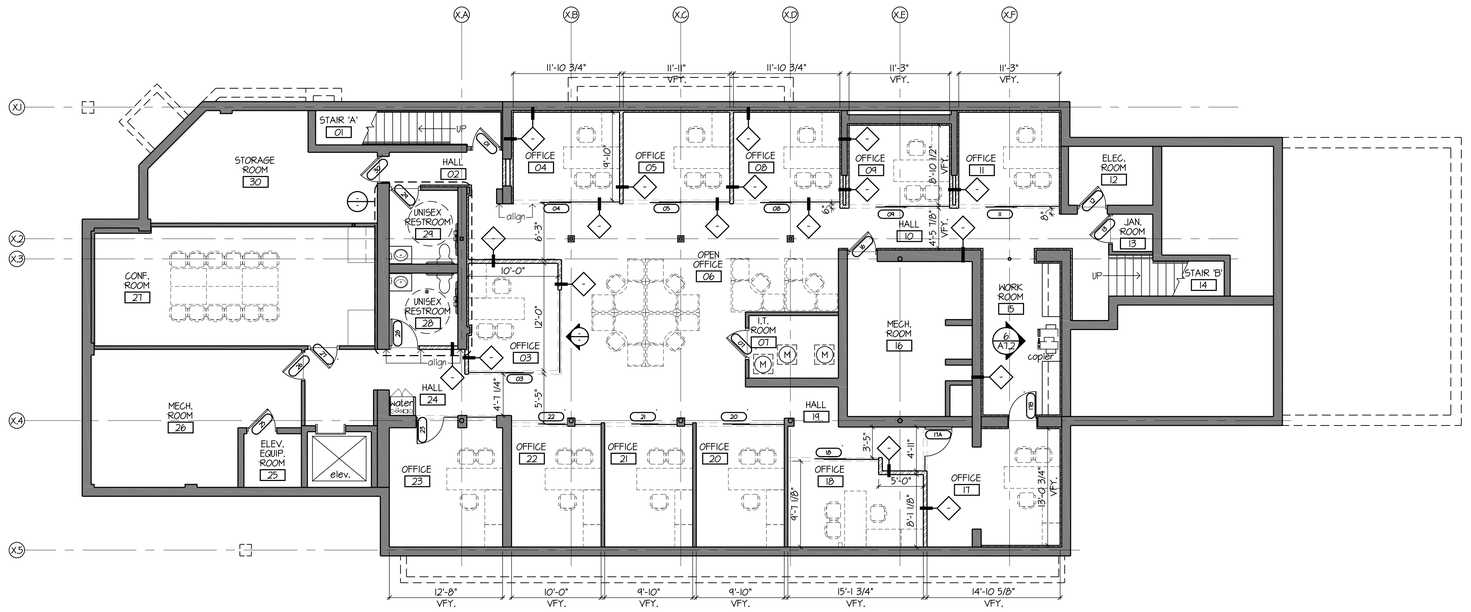
1. THRESHOLD.
2. WEATHER STRIPPING.
3. CLOSER.
4. AUTOMATIC HCP. DOOR OPENER.
5. ELECTRIC LOCK (BY G.C.) & CARD READER/FOB. (DEVICE BY OTHERS).
6. COAT HOOK.

GENERAL NOTES:

1. INTERIOR PARTITIONS SHALL BE 3-5/8" STL. STUDS @ 16" O.C. w/ 5/8" GYP. BD. ON EA. SIDE EXTENDED 4" ABOVE CEILING- UNLESS NOTED OTHERWISE. SEE WALL TYPES ON SHEET A2.1.
2. MOUNT FIRE EXTINGUISHER CABINETS @ 5'-0" A.F.F. TO TOP OF CABINET.
3. G.C. TO PROVIDE ALL NECESSARY WOOD BLOCKING IN WALLS FOR WALL-HUNG ITEMS (CABINETS, SHELVING, COUNTERTOPS, . . . etc.)
4. INTERIOR COLUMNS TO BE FINISHED w/ 5/8" GYP. BD. ON 1/8" STL. FURRING CHANNELS w/ MTL. J-BEADS @ EACH CORNER- SEE ENLARGED DETAILS. REFER TO STRUCTURAL DRAWINGS FOR STEEL COLUMN SIZES.

WALL TYPES





1 A2.1 LOWER LEVEL PLAN
1/8"=1'-0" (6,060 sf.)

HTG architects
www.htg-architects.com
Minneapolis Bismarck
1010 Main Street, Suite 100
Hopkins, Minnesota 55343
Tel: 952.278.8880

PROJECT

COULEE BANK

ADDITION / REMODELING

1516 LOSEY BLVD. S.
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ISSUED SET
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REG. NO. DATE

LOWER LEVEL PLAN

DRAWN BY: HLH. CHECKED BY: RES.

A2.1

251101 LL-251101

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II-251101.dwg Mar 10, 2026 - 1:24pm

ROOM FINISH SCHEDULE

ROOM NAME	NO.	FLOOR: CONCRETE (SEALED)	FLOOR: CARPET	FLOOR: CERAMIC TILE	FLOOR: RESILIENT FLOORING	FLOOR: WALK-OFF CARPET	FLOOR: NO WORK.	BASE: CERAMIC TILE	BASE: 4" VINYL	BASE: SCHLUTER COVE BASE TRIM	BASE: NO WORK.	WALL: GYP. BD. (PAINT)	WALL: CERAMIC TILE	WALL: 1X6 WOOD PLANKS	WALL: NO WORK.	CEILING: PAINT/GYP.BD.	CEILING: ACT TYPE 1	CEILING: ACT TYPE 2 (4'x4')	CEILING: 1x6 WOOD PLANK	CEILING: EXPOSED STRUCTURE	CEILING: NO WORK.	REMARKS
MAIN ENTRY VESTIBULE	101			●				●				●						●				-
LOBBY	102		●	●				●	●	●		●		●				●				
WAITING AREA	103		●						●			●						●				
STAIR 'A'	104				●				●			●									●	
TELLER AREA	105		●						●									●				
DRIVE-UP TELLER	106		●						●			●					●					
CASH WORK ROOM	107		●						●			●					●					
OFFICE	108		●						●			●					●					
HALL	109		●						●			●					●					
OFFICE	110		●						●			●					●					
OFFICE	111		●						●			●					●					
EMPLOYEE ENTRY	112			●				●				●					●					
HALL	113		●						●			●					●					
UNISEX RESTROOM	114			●						●		●	●				●					
UNISEX RESTROOM	115			●						●		●	●				●					
BREAK ROOM	116				●				●			●					●					
STAIR 'B'	117				●				●			●					●					
JANITOR CLOSET	118						●				●	●									●	
EXSITING VAULT	119		●						●			●				●						
VIEWING ROOM	120		●						●			●				●						7
HALL	121		●						●			●					●					
OFFICE	122		●						●			●					●					
OFFICE	123		●						●			●					●					
WORK AREA	124		●						●			●					●					
HALL	125		●						●			●					●					
OFFICE	126		●						●			●					●					
OFFICE	127		●						●			●					●					
OFFICE	128		●						●			●					●					
OFFICE	129		●						●			●					●					
OFFICE	130		●						●			●					●					
OFFICE	131		●						●			●					●					
OFFICE	132		●						●			●					●					
OFFICE	133		●						●			●					●					
HALL	134		●						●			●					●					
OFFICE	135		●						●			●					●					
OFFICE	136		●						●			●					●					

1. EXTEND WALLS UP TO DECK.
2. PROVIDE WALLS W/ SOUND BATT. INSULATION.
3. INSTALL 5'-1" H. VFY. CERAMIC TILE WAINSCOT W/ PAINT FINISH ABOVE (SEE 3 & 4/A2.3).
4. PROVIDE SHELF & MOP HOLDER ABOVE SLOP SINK - MOUNT TOP OF SHELF @ 72" AFF.
5. INSTALL 4'-0" H. FIBERGLASS PANEL WAINSCOT ON SOUTH & EAST WALL @ MOP SINK.
6. PROVIDE 6'-8" W. x 8'-0" L. RECESSED FLOOR FOR WALK-OFF CARPET TILE.
7. FURNISH & INSTALL 2'-0"D. x 3'-0"L. PLAM. COUNTERTOP W/ 4" BACKSPLASH. COUNTERTOP TO BE 1 1/2" THICK & MOUNTED AT 30" AFF.

BANK EQUIPMENT KEYED LIST (NIC.):

SEE SPEC. FOR GENERAL/MECH/ELEC. WORK
(Verify all bank equipment w/ Owner & Bank Equip. Supplier)

- (A) EXISTING REMOTE DRIVE-UP KIOSK, UPSEND TYPE.
- (B) EXISTING ELECTRIC DEAL DRAWER
- (C) EXISTING ATM.- AUTOMATED TELLER MACHINE.
- (D) UNDERCOUNTER METAL CASH OR STORAGE UNIT
- (E) EXISTING AFTER HOUR DEPOSIT HEAD & CHEST WITH 1" STEEL SURROUND.
- (F) TELLER CASH RECYCLER (TCR)
- (G) EXISTING DRIVE-UP WINDOW TO REMAIN.
- (H) SELF-SERVE COIN COUNTER
- (J) TL-15 SAFE W/ SAFE DEPOSIT BOXES
- (K) EXISTING SAFE DEPOSIT BOXES
- (L) INSTANT ISSUE MACHINE
- (M) EXISTING SERVER / IT. RACK
- (N) SHRED-IT BINS
- (P) PRINTER

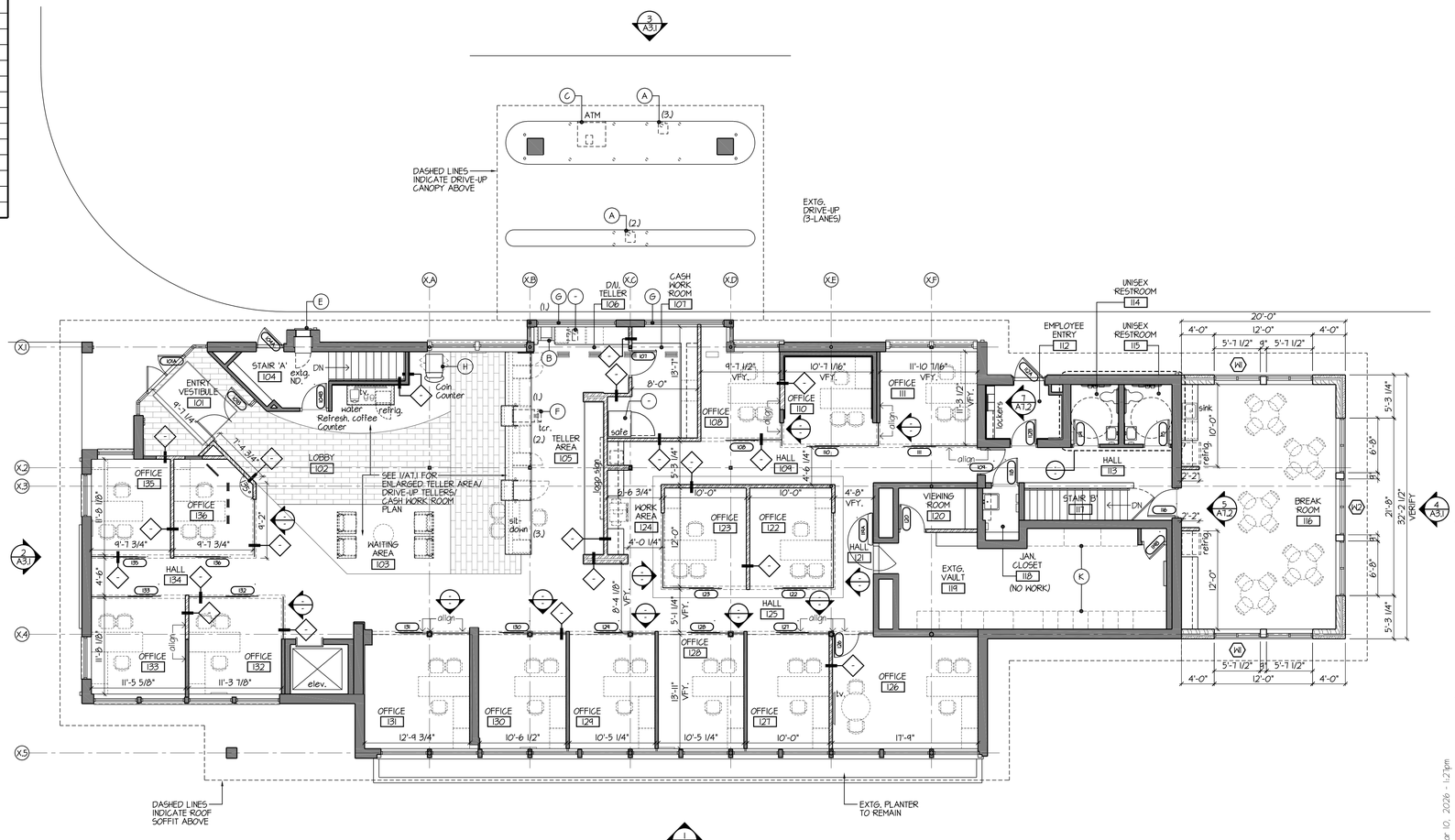
GENERAL NOTES:

1. INTERIOR PARTITIONS SHALL BE 3-5/8" STL. STUDS @ 16" O.C., W/ 5/8" GYP. BD. ON EA. SIDE EXTENDED 4" ABOVE CEILING- UNLESS NOTED OTHERWISE. SEE WALL TYPES ON SHEET A2.1.
2. MOUNT FIRE EXTINGUISHER CABINETS @ 5'-0" A.F.F. TO TOP OF CABINET.
3. G.C. TO PROVIDE ALL NECESSARY WOOD BLOCKING IN WALLS FOR WALL-HUNG ITEMS (CABINETS, SHELVING, COUNTERTOPS, . . . etc.)
4. INTERIOR COLUMNS TO BE FINISHED W/ 5/8" GYP. BD. ON T/B" STL. FURRING CHANNELS W/ MTL. J-BEADS @ EACH CORNER- SEE ENLARGED DETAILS. REFER TO STRUCTURAL DRAWINGS FOR STEEL COLUMN SIZES.

DOOR SCHEDULE

DOOR#	DOOR SIZE	DOOR MATL/TYPE		FRAME MATL/TYPE		RATE	HARDWARE GROUP	NOTES
101A	EXTG. TO REMAIN	-	-	-	-	-	-	-
101B	PR. 3'-0"x1'-0"x1-3/4"	AL.	12A/A6.1	AL.	2/A6.1			
104A	EXTG. TO REMAIN	-		-				
104A	EXTG. TO REMAIN	-		-				
107	3'-0"x1'-0"x1-3/4"	WD.		HM.				
108	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
109	EXTG. TO REMAIN	-		-				
110	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
111	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
112A	EXTG. TO REMAIN	-		-				
112B	3'-0"x1'-0"x1-3/4" VFY.							
114	EXTG. TO REMAIN	-		-				
115	EXTG. TO REMAIN	-		-				
116	3'-4"x1'-0"x1-3/4" VFY.							
118	EXTG. TO REMAIN	-		-				
119A	EXISTING VAULT DOOR			-				
119B	EXTG. TO REMAIN	-		-				
120	3'-0"x1'-0"x1-3/4"							
122	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
123	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
126	3'-0"x8'-0"x1/2"	GL.	-	-	-		-	
127	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
128	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
129	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
130	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
131	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
132	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
133	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
135	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	
136	4'-0"x8'-0"x1/2"	GL.	-	-	-		-	

1. THRESHOLD.
2. WEATHER STRIPPING.
3. CLOSER.
4. AUTOMATIC H.C.P. DOOR OPENER.
5. ELECTRIC LOCK (BY G.C.) & CARD READER/FOB. (DEVICE BY OTHERS).
6. COAT HOOK.



1 A2.2 MAIN LEVEL PLAN
1/8"=1'-0" (Existing: 6,160 S.F. + Addition: 640 S.F.)

HTG architects
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Minneapolis Bismarck
1010 Main Street, Suite 100
Hopkins, Minnesota 55343
Tel: 952.278.8880

PROJECT

COULEE BANK

ADDITION / REMODELING

1516 LOSEY BLVD. S.
LA CROSSE, WI

ISSUED SET
REVISIONS

DATE	NO.	

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF WISCONSIN

REG. NO. DATE

MAIN LEVEL PLAN

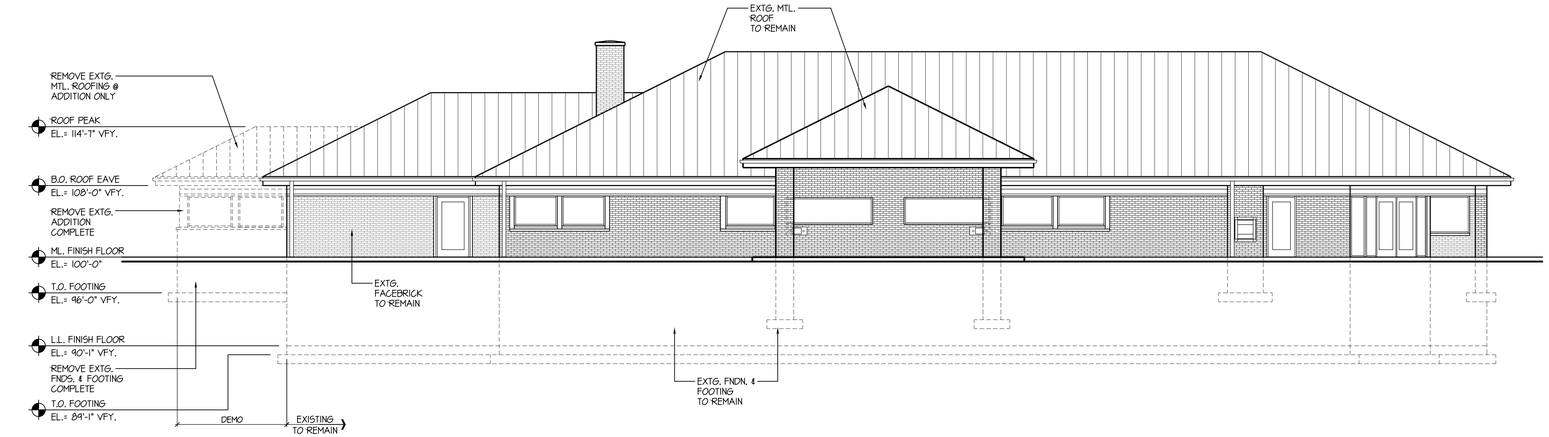
mt-251101.dwg Mar 10, 2026 - 1:27pm

DRAWN BY: HLH. CHECKED BY: RES.

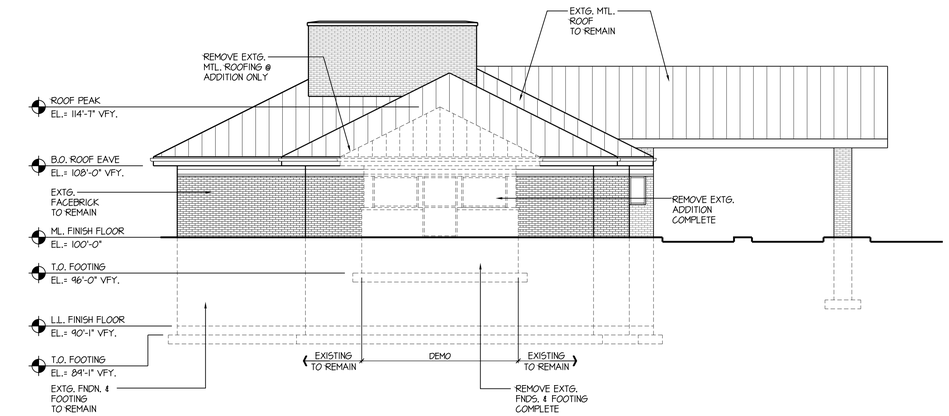
A2.2

251101 ML-251101

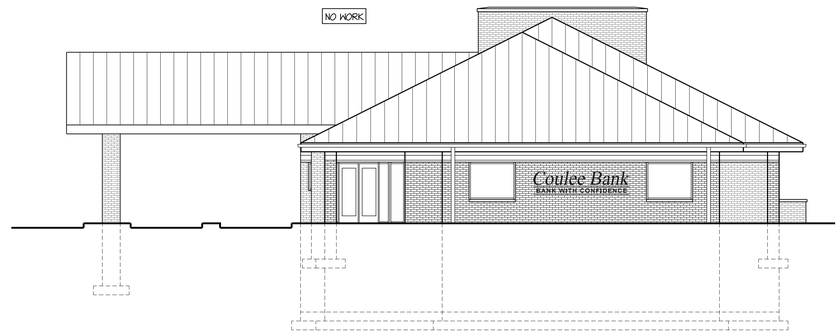
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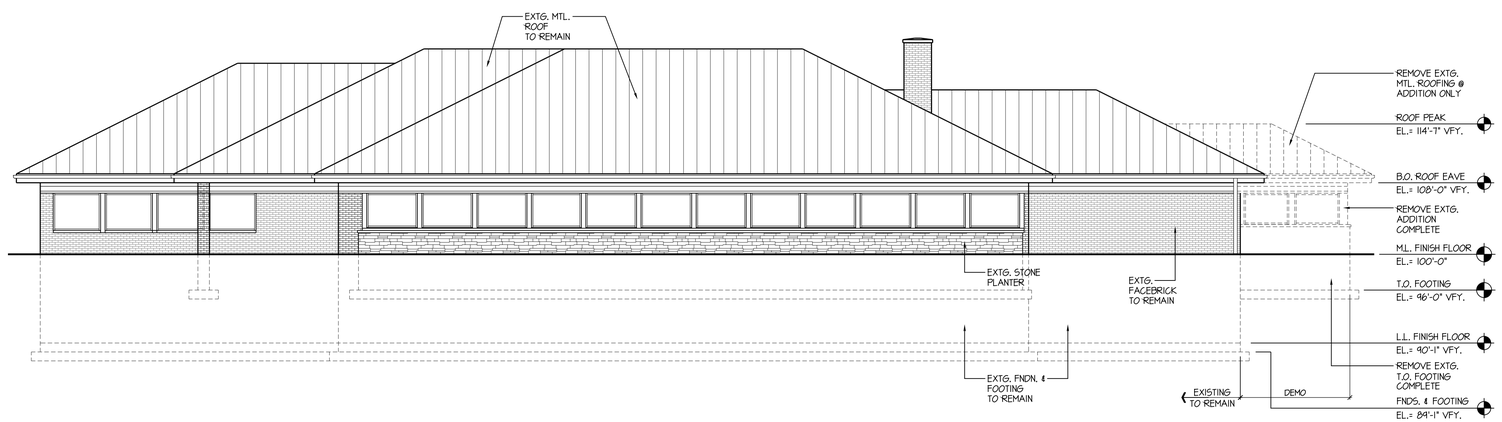
1 A3.1 WEST DEMOLITION ELEVATION
1/8"=1'-0"



2 A3.1 NORTH DEMOLITION ELEVATION
1/8"=1'-0"



3 A3.1 SOUTH ELEVATION- FOR REFERENCE ONLY
1/8"=1'-0"



4 A3.1 EAST DEMOLITION ELEVATION
1/8"=1'-0"

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PROJECT

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EXTERIOR DEMOLITION ELEVATIONS

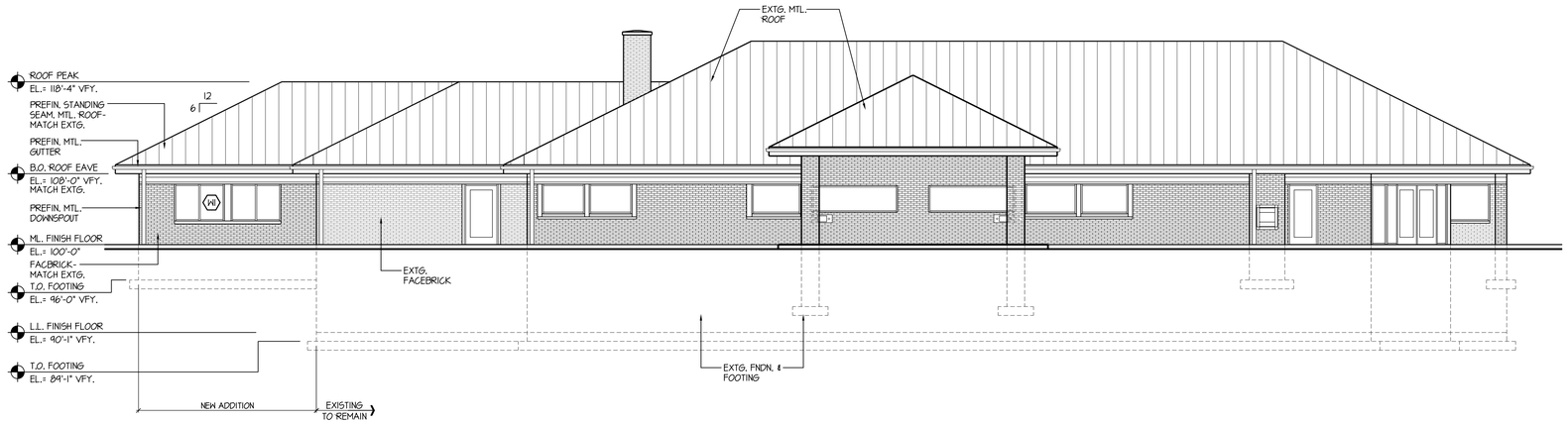
ee-25101.dwg Feb 10, 2026 - 10:46am

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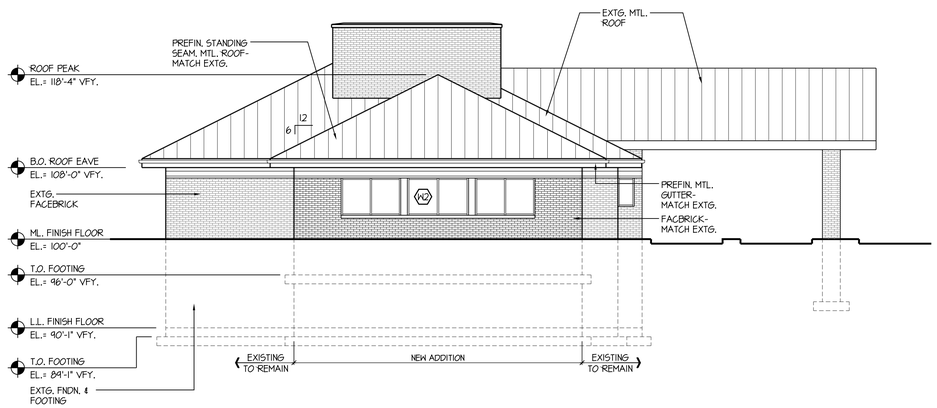
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251101 EE-251101

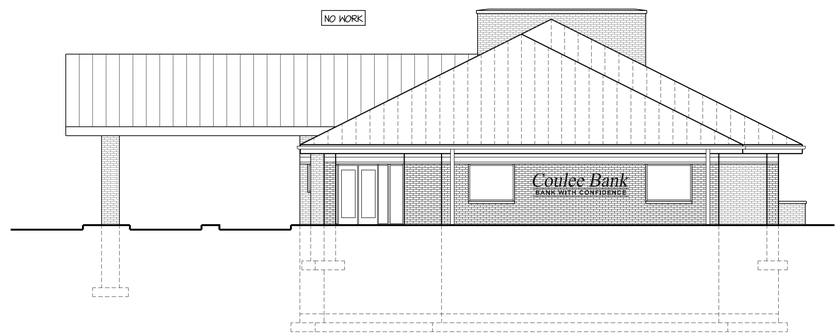
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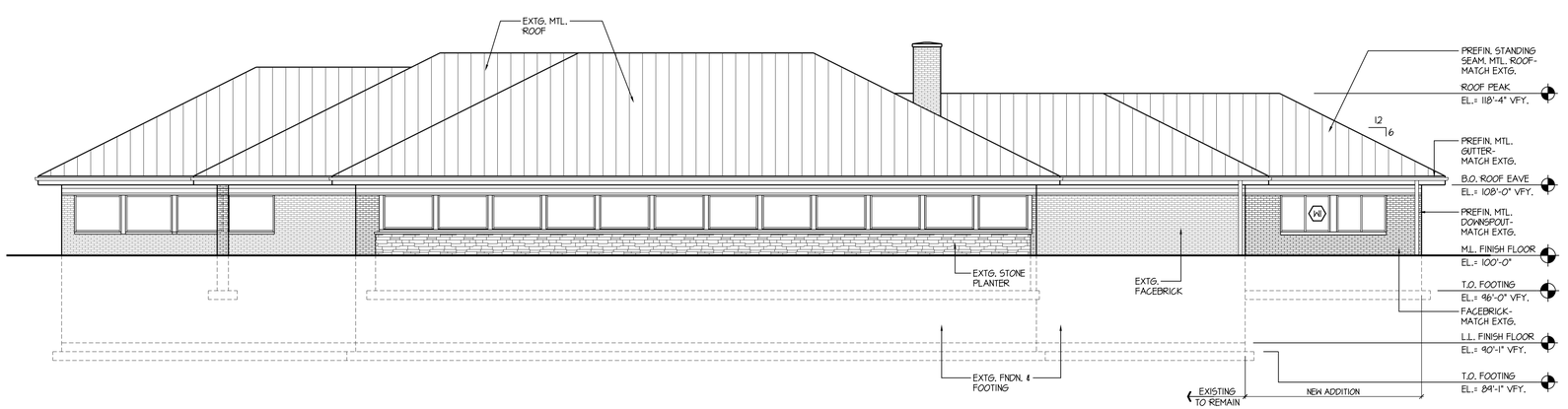
1 A3.2 WEST ELEVATION
1/8"=1'-0"



2 A3.2 NORTH ELEVATION
1/8"=1'-0"



3 A3.2 SOUTH ELEVATION- FOR REFERENCE ONLY
1/8"=1'-0"



4 A3.2 EAST ELEVATION
1/8"=1'-0"

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PROJECT

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EXTERIOR ELEVATIONS

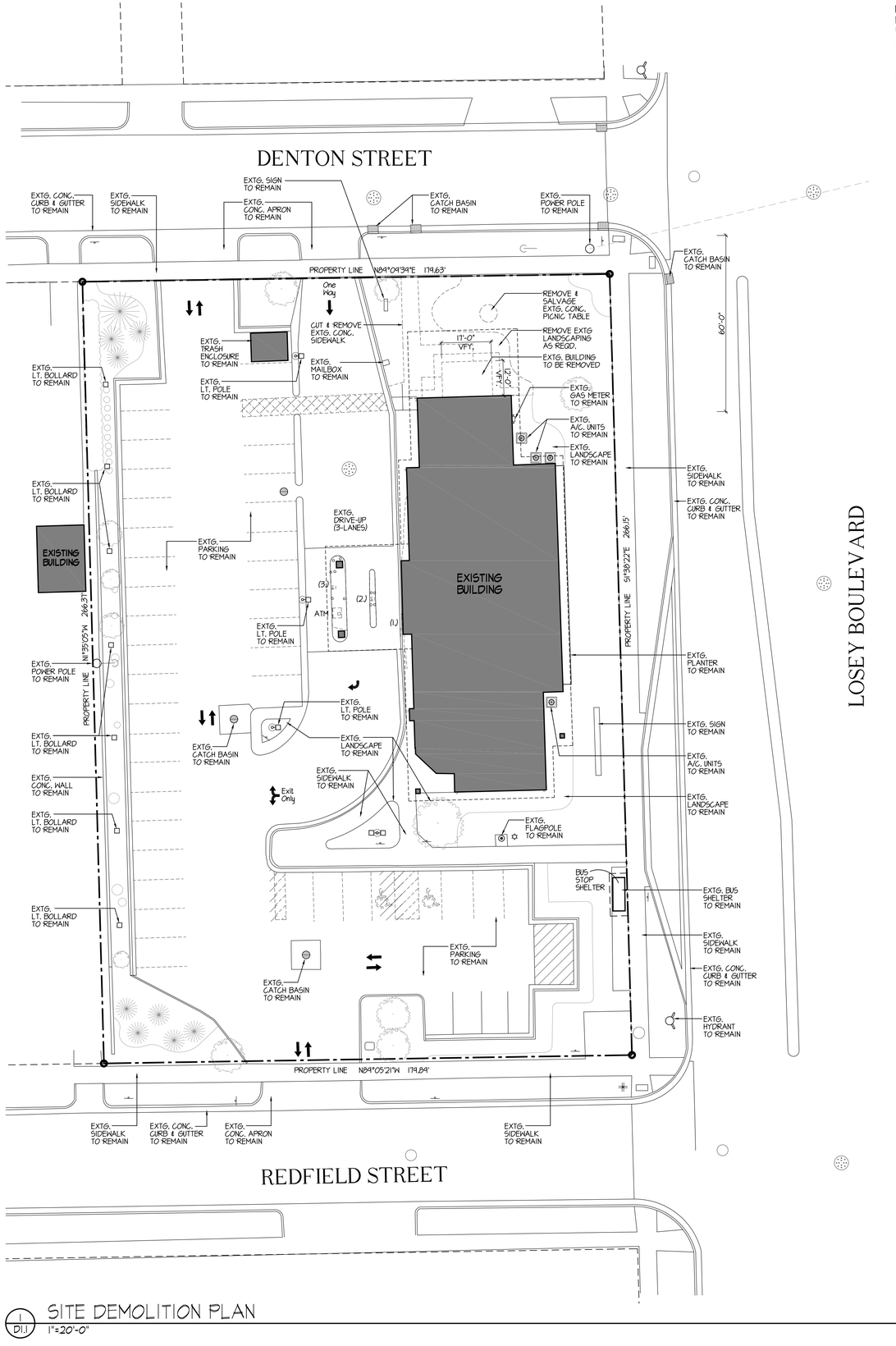
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A3.2

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1 / D1.1 SITE DEMOLITION PLAN
1"=20'-0"

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PROJECT

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SITE DEMOLITION PLAN

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D1.1

251101 DP1-251101

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dp1-251101.dwg, Mar 03, 2026 - 11:26am

DEMOLITION WALL TYPES:

EXISTING WALLS TO REMAIN

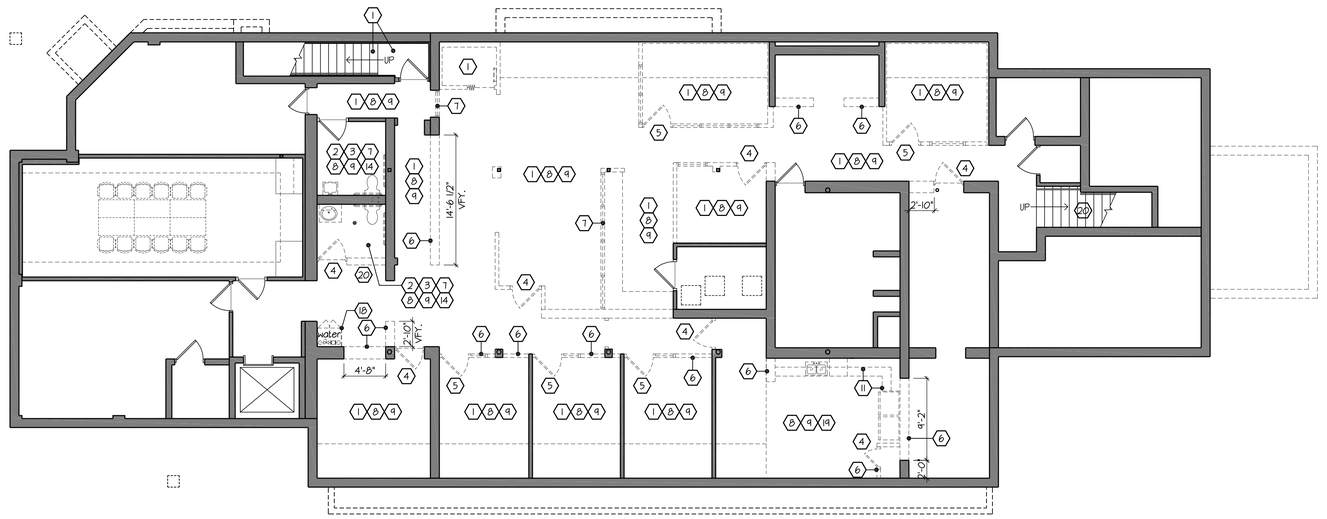
EXISTING WALLS TO BE REMOVED

DEMOLITION KEYED NOTES:

1. REMOVE EXISTING CARPET FLOORING AND BASE. PREP FLOOR FOR NEW FINISHES.
2. REMOVE EXISTING FLOOR TILE & BASE. PREP FLOORS FOR NEW FINISHES.
3. REMOVE EXISTING WALL TILE. PREP WALLS FOR NEW FINISHES.
4. REMOVE EXISTING DOOR & FRAME
5. REMOVE EXISTING OFFICE FRONT COMPLETE
6. CUT & REMOVE PORTION OF EXISTING WALL AS REQUIRED
7. REMOVE EXISTING MIRRORS/TOILET ACCESSORIES & TOILET COMPARTMENTS
8. REMOVE EXISTING CEILING GRID AND TILE.
9. REMOVE EXISTING LIGHT FIXTURES- SEE ELEC.
10. REMOVE EXISTING LAMINATE WINDOW SILLS
11. REMOVE EXISTING MILLWORK/ CABINETS
12. REMOVE EXISTING TELLERLINE COMPLETE
13. REMOVE EXISTING WINDOW TREATMENTS/BLINDS
14. REMOVE EXISTING PLUMBING FIXTURE(S)- SEE MECHANICAL
15. REMOVE EXISTING TILE BASE
16. REMOVE EXISTING VINYL BASE
17. REMOVE EXISTING INTERIOR WINDOW
18. REMOVE EXISTING MILLWORK CABINET AROUND WATER SERVICE EQUIPMENT.
19. REMOVE EXISTING RESILIENT FLOORING & BASE. PREP FLOOR FOR NEW FINISH.
20. REMOVE EXISTING RUBBER STAIR TREADS. PREP FOR NEW FINISH.

DEMOLITION NOTES:

1. WHERE NOTED & DASHED IN, REMOVE EXISTING WALLS, DOORS, FRAMES, CEILING, & FINISH MATERIAL ONLY AS REQUIRED. CUT & PATCH TO MATCH EXISTING.
2. REMOVE EXISTING OUTLETS, GRILLES, SWITCHES, etc. ONLY IN WALLS TO BE REMOVED.
3. DEMOLITION TO INCLUDE ALL CEILING TILE WHERE NEW IS TO BE INSTALLED.
4. ALL FLOOR PREP, BY G.C.
5. WHERE EXISTING OPENINGS ARE REMOVED, INFILL OPENING MATCH EXISTING WALL CONSTRUCTION- VERIFY.
6. GRIND SMOOTH ALL RIDGES IN EXISTING FLOOR AS REQUIRED.
7. REMOVE EXISTING CARPET FLOORING & BASE- PREP TO ACCEPT NEW FINISHES. FLOOR TO BE SCRAPED SMOOTH BEFORE NEW FLOORING IS APPLIED.
8. REMOVE EXISTING WALLCOVERING. PREP WALL FOR NEW FINISH.
8. REMOVE EXISTING EXIT LIGHT FIXTURES & REPLACE WITH NEW.
9. G.C. TO FIELD VERIFY ALL ELECTRICAL OUTLET LOCATIONS BEFORE DEMOLITION AND REUSE OUTLETS WHERE POSSIBLE.
10. CONCRETE FLOOR CUTTING- COORDINATE WITH OWNER ON APPROPRIATE TIME TO DO SO- VERIFY LOCATIONS OF NEW ELECTRICAL REQUIRED.
11. ALL VOICE/DATA/NETWORK CABLING TO BE REMOVED BY OWNERS VENDOR. G.C. TO COORDINATE ALL WIRE REMOVAL WITH OWNERS VENDOR- TYPICAL.
12. BROOM CLEAN ALL AREAS AFFECTED BY DEMOLITION AND CONSTRUCTION BEFORE LEAVING JOB SITE EACH DAY. CLEAN ALL WINDOW GLASS OF DUST AND DEBRIS BEFORE JOB IS COMPLETE- TYPICAL.
13. STRIP EXISTING WALL COVERINGS & PREP, TO ACCEPT NEW FINISHES IF/AS REQUIRED.



1 D2.1 LOWER LEVEL DEMOLITION PLAN
1/8"=1'-0"

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Tel: 952.278.8880

PROJECT

COULEE BANK

ADDITION / REMODELING

1516 LOSEY BLVD. S.
LA CROSSE, WI

ISSUED SET
REVISIONS

DATE	NO.	

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REG. NO. DATE

LOWER LEVEL DEMOLITION PLAN

dp2-251101.dwg Feb 10, 2026 - 12:27pm

DRAWN BY: HLH. CHECKED BY: RES.

D2.1

251101 DP2-251101

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DEMOLITION WALL TYPES:

EXISTING WALLS TO REMAIN

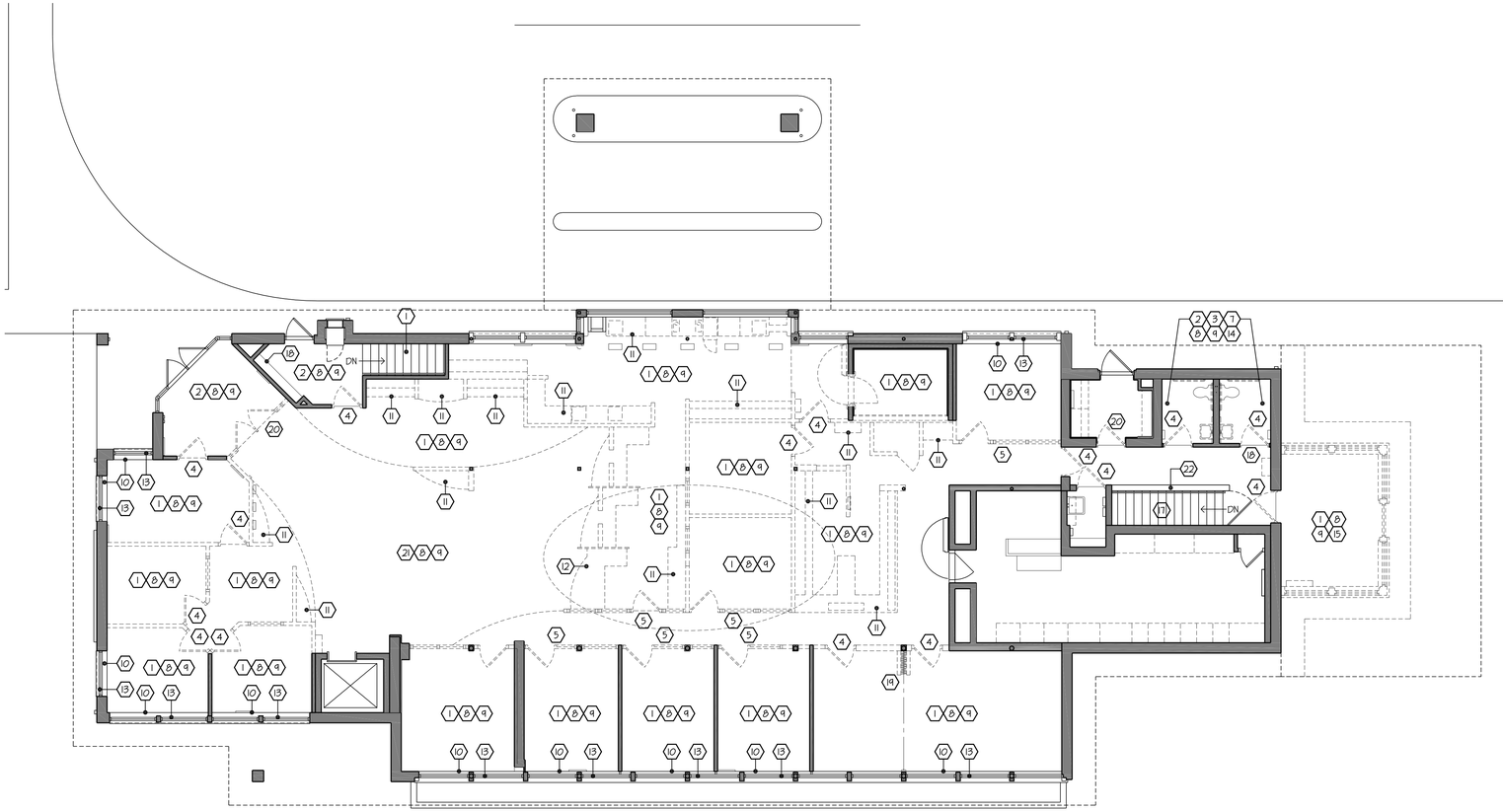
EXISTING WALLS TO BE REMOVED

DEMOLITION KEYED NOTES:

1. REMOVE EXISTING CARPET FLOORING AND BASE. PREP FLOOR FOR NEW FINISHES.
2. REMOVE EXISTING FLOOR TILE & BASE. PREP FLOORS FOR NEW FINISHES.
3. REMOVE EXISTING WALL TILE. PREP WALLS FOR NEW FINISHES.
4. REMOVE EXISTING DOOR & FRAME.
5. REMOVE EXISTING OFFICE FRONT COMPLETE.
6. CUT & REMOVE PORTION OF EXISTING WALL AS REQUIRED
7. REMOVE EXISTING MIRRORS/TOILET ACCESSORIES & TOILET COMPARTMENTS.
8. REMOVE EXISTING CEILING GRID AND TILE.
9. REMOVE EXISTING LIGHT FIXTURES- SEE ELEC.
10. REMOVE EXISTING LAMINATE WINDOW SILLS
11. REMOVE EXISTING MILLWORK/ CABINETS
12. REMOVE EXISTING TELLERLINE COMPLETE
13. REMOVE EXISTING WINDOW TREATMENTS/BLINDS
14. REMOVE EXISTING PLUMBING FIXTURE(S)- SEE MECHANICAL
15. REMOVE EXISTING TILE BASE.
16. REMOVE EXISTING VINYL BASE.
17. REMOVE EXISTING RUBBER STAIR TREADS, PREP FOR NEW FINISH.
18. REMOVE COAT ROD AND SHELF.
19. REMOVE EXISTING ACCORDING DOOR AND TRACK COMPLETE
20. REMOVE EXISTING ALUMINUM DOOR & FRAME
21. REMOVE EXISTING HARDWOOD FLOORING AND BASE. PREP FLOOR FOR NEW FINISH.
22. REMOVE EXISTING WOOD CAP COMPLETE.

DEMOLITION NOTES:

1. WHERE NOTED & DASHED IN, REMOVE EXISTING WALLS, DOORS, FRAMES, CEILING & FINISH MATERIAL ONLY AS REQUIRED. CUT & PATCH TO MATCH EXISTING.
2. REMOVE EXISTING OUTLETS, GRILLES, SWITCHES, etc. ONLY IN WALLS TO BE REMOVED.
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4. ALL FLOOR PREP. BY G.C.
5. WHERE EXISTING OPENINGS ARE REMOVED, INFILL OPENING MATCH EXISTING WALL CONSTRUCTION- VERIFY.
6. GRIND SMOOTH ALL RIDGES IN EXISTING FLOOR AS REQUIRED.
7. REMOVE EXISTING CARPET FLOORING & BASE- PREP TO ACCEPT NEW FINISHES. FLOOR TO BE SCRAPED SMOOTH BEFORE NEW FLOORING IS APPLIED.
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13. STRIP EXISTING WALL COVERINGS & PREP. TO ACCEPT NEW FINISHES IF/AS REQUIRED.



1 D2.2 MAIN LEVEL DEMOLITION PLAN
1/8"=1'-0"

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PROJECT

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LA CROSSE, WI

ISSUED SET
REVISIONS

DATE	NO.	

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MAIN LEVEL DEMOLITION PLAN

dp2-251101.dwg Feb 23, 2026 - 10:00am

DRAWN BY: HLH. CHECKED BY: RES.

D2.2

251101 DP2-251101

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City of La Crosse, Wisconsin

City Hall
400 La Crosse Street
La Crosse, WI 54601

Text File

File Number: 26-0300

Agenda Date: 3/20/2026 **Version:** 1 **Status:** Agenda Ready

In Control: Commercial/Multi-Family Design Review Committee **File Type:** Review of Plans

Agenda Number: 3.

MULTIFAMILY HOUSING DESIGN STANDARDS APPLICATION

Planning Department · Phone: (608) 789-7512 · Fax: (608) 789-7318
http://www.cityoflacrosse.org Planning@cityoflacrosse.org

Permit No:	
Date:	
STATUS:	**Parcel No.:**

OWNER

Name: Steven Nicolai			
Address: 4535 Mormon Coulee Road #5			
City: La Crosse	State: WI		Zip Code: 54601
Phone: (608) - 788-7962	Cell: ( ) -	Fax: ( ) -	Email: nate@nicolaiapartments.com

ARCHITECT CONTRACTOR

Name: Kevin Timmerman 5th Avenue Design			
Address: 504 5th Avenue			
City: La Crosse	State: WI		Zip Code: 54601
Phone (608) - 780-5075	Cell: ( ) -	Fax: ( ) -	Email: 504bydesign@gmail.com

PROJECT

Check one: ☒ Building ☐ Addition ☐ Alteration/Remodel

Description of Work:

The proposed development includes the construction of a 15-unit apartment building featuring a mix of one- and two-bedroom units. The project will also include detached garages and surface parking to accommodate residents and guests. The development will provide modern housing while making efficient use of the site and complementing the surrounding area.

Pre-Application Meeting Date:

Applying for Exception: ☒ No ☐ Yes (include $300 check for public notification)

PROPERTY

Project Address: 3629 Calvert Road La Crosse, WI 54601

Zoning District: R-5		Parcel Number: 17-50325-760
Address: 3629 Calvert Road		Address information same as property owner: ☐
City: La Crosse	State: WI	Zip Code: 54601

OFFICE USE ONLY

Date Received	
Review Date	
Exception Check	☐ Yes ☐ No
Required Info	☐ Architectural Plan ☐ Site Plan ☐ Exterior Light Fixture Locations ☐ Photos ☐ Street façade diagram ☐ Design Standards Checklist/LEED Checklist ☐ Landscaping Plan

The applicant agrees that all design aspects and maintenance plans are in accordance with the requirements of Section 15.46 of the Code of Ordinances for the City of La Crosse. Application, the checklist, and seven (7) sets of required information must be submitted to the City Inspection Department prior to review and acceptance.

Kevin Timmerman 5th Avenue Design
(PRINT) Architect/Engineer Name

03.13.26
Signature (Architect/Engineer) DATE

Steven Nicolai
(PRINT) Owner Name

3-13-26
Signature (Owner) DATE

DESIGN REVIEW CHECKLIST

The checklist must be completed in full by the applicant prior to submission. Completed elements should be checked. Any elements that do not apply to your site or you are requesting an exception on, check the corresponding column and include notes. Items in italics are recommended actions but not required.

		YES	NO	N/A	NOTES
C.2	Parking stalls no closer to street than the building	☐	☒	☐	
C.3	No driveway to the street if lot has alley access	☐	☐	☒	
C.4	Minimum of a 15' landscape buffer between the building and the parking	☒	☐	☐	
C.5	Parking is a minimum of 5' set back from all property lines *(except alley)*	☒	☐	☐	
C.6	Planting islands in parking lot with 12 spaces, and an extra planting island for every additional 20 spaces	☐	☐	☒	
C.7	*In place of C.4, C.5, & C.6*, the rear yard sets aside green space totaling 15% of lot	☐	☐	☒	
C.8	Buffers, setbacks, and planting islands may be used for stormwater infiltration.	☐	☐	☒	
C.9	There is pavement, concrete curb, and gutter in all parking areas with 8 or more spaces	☒	☐	☐	
C.10	Minimum of one off-street parking space per bedroom	☐	☒	☐	
C.11	All parking spaces at least 8.5' by 17'	☒	☐	☐	
C.12	Drive aisle meets minimum width requirement	☒	☐	☐	
C.13	If at least 25% of paved areas uses paving blocks, parking increased by no more than 5%	☐	☒	☐	
C.14	Parking lots on same lot as principle structure	☒	☐	☐	
C.15	Techniques used along edges and parking edges to prevent motor vehicles on grass areas	☒	☐	☐	
C.16a	Parking lot snow storage area(s) designated in parking lot and/or green space buffers	☒	☐	☐	
C.16b	Snow storage area(s) are not within the required outdoor recreational space	☒	☐	☐	
C.16c	Snow Storage area(s) are not located near parking entrances	☒	☐	☐	
C.17	Light-colored and/or reflective surfaces coatings for parking lots	☒	☐	☐	
C.18	Low-impact paving materials and methods used	☐	☒	☐	
C.19	Porous paving materials use to reduce stormwater runoff	☐	☒	☐	
D.2	Pedestrian routes designated and paved	☒	☐	☐	
D.3	Pedestrian routes use concrete or other approved material *(no asphalt or similar material)*	☒	☐	☐	
D.4	Pedestrian routes use porous paving material	☐	☒	☐	
E.2	Site and building plans show all required items	☒	☐	☐	
E.3	No service, utility, or mechanical features within 10' of building front *(except mailboxes)*	☒	☐	☐	
E.4	Trash and recycling containers screened	☒	☐	☐	
E.5	Trash and ash cans at each entrance serving 2 or more units	☐	☐	☒	
E.6a	Heating appliances are located inside the building	☒	☐	☐	
E.6b	High energy gas appliances' intakes and exhaust vents located on the side or rear away from sidewalks, trees, & shrubs	☐	☐	☒	
E.6c	Window-mounted air conditioners are not located in windows facing the street	☒	☐	☐	
E.6d	"Magic Pak" air conditioner/heat pump units on street facing facades	☐	☐	☒	
E.6e	Wall-mounted air conditioners facing the street are masked or blend in with the exterior siding and finishes	☐	☒	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
E.6f	Heat pumps or air conditioners located on the ground are on one side or the rear of the building and are screened	☐	☐	☒	
E.6g	Heat pumps or air conditioners located on the roof are one side or the rear of the building and are screened	☐	☐	☒	
E.7a	One bike parking space provided for every three bedrooms.	☒	☐	☐	
E.7b	Bicycle parking *(accommodating four bicycles)* is at least 9' by 6' or 54 sq.ft. and increase by the same ratio for any additional bike parking spaces.	☒	☐	☐	
E.7c	Exterior bicycle parking are either ribbon racks or bike racks.	☒	☐	☐	
E.7d	Exterior bike parking areas is located inside/near building entries that is well-lit and not in the front yard or placed to interfere with pedestrian circulation	☒	☐	☐	
E.7f	Bikes are not stored, locked, or chained on decks, patios, fences, or any other exterior locations other than in bike racks designed for bicycle parking	☒	☐	☐	
E.7g	Bicycle parking areas uses porous pavers *(except the bike rack base is concrete)*	☐	☒	☐	
E.8	No outdoor vending machines	☐	☐	☒	
F.2	Landscape plan addresses all parts of the parcel and indicates maintenance requirements	☒	☐	☐	
F.3a	At least one shade tree per 40 linear feet of lot frontage	☒	☐	☐	
F.3b	At least one tree placed in the boulevard per 40 linear feet of lot frontage	☒	☐	☐	
F.3c	At least one tree and 10 shrubs per 600 sq. ft. of landscaped area	☒	☐	☐	
F.4	Plant size minimum standards have been met in landscape plan	☒	☐	☐	
F.5	Boulevard tree species are from the City's approved list	☒	☐	☐	
F.6	No *Poplar, Box Elder, Catalpa, Mountain Ash, Willows, Birch, Conifers, Hackberry,* or *Elm* trees	☐	☐	☐	
F.7	Existing healthy trees are preserved and indicated in landscape plan	☐	☒	☐	
F.8	Landscaping reinforces pedestrian routes	☒	☐	☐	
F.9	Parking areas screened from street by shrubs or by other natural landscape screening	☒	☐	☐	
F.10	Required sq. ft. of outdoor recreational area on ground level	☒	☐	☐	
F.11	Building(s) designed to create usable open space	☒	☐	☐	
G.2a	Walls and fences in the front yard do not exceed 4' in height above the finished grade	☐	☐	☒	
G.2b	Walls and fences follow the height restrictions in the side and back yards	☐	☐	☒	
G.2c	Any fence & retaining wall in the front yard setback that exceed 4' in height has a fence that is least 50% transparent	☐	☐	☒	
G.3a	Wall and fence materials coordinated with building materials	☐	☐	☒	
G.3b	Green treated lumber fences are stained or painted	☐	☐	☒	
G.3c	Plastic coated chain link fences are not in the front yard or side yard on corner lots	☐	☐	☒	
G.3d	Walls constructed with smooth faced concrete bricks/blocks are covered by brick or some other decorative block or dimensional material	☐	☐	☒	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
G.4	Fences over 4' in height and/or 50' in length provide a variety of articulation and include at lease one of the following elements: changes in plane, expression of structure, variation of material	☐	☐	☒	
H.2	Stormwater Management and Erosion Control Plan coordinates with Landscape and Open Space Plan and designed by a RLA, Architect, or PE	☒	☐	☐	
H.3	Parking lots with 3 or more spaces direct 80% of water to on-site infiltration basin or rain garden and equals at least 10% of impervious parking and drive area	☒	☐	☐	
H.4	Stormwater is not discharged across sidewalks or neighboring parcels	☒	☐	☐	
H.5	100% of water from 2-year storm infiltrated on-site *(20,000 SF+)*	☒	☐	☐	
H.6	Stormwater facilities designed to enhance appearance of site	☒	☐	☐	
I.2	Exterior lights are residential models and spec sheets are submitted	☒	☐	☐	
I.3	Uniform outdoor pedestrian lighting	☒	☐	☐	
I.4	Parking lot light fixtures no higher than 16' above ground	☒	☐	☐	
I.5	All fixtures are full-cut-off design	☒	☐	☐	
I.6	Overhead light sources not visible from property line w/ 0.5 HFC 25 ft. from property line	☒	☐	☐	
I.7	Lighting levels for parking lot and pedestrian routes are met	☒	☐	☐	
I.8	Exterior entries and garages are designed to have exterior lights	☒	☐	☐	
I.9	Exterior lighting has automatic controls to allow for house number(s) to be visible	☐	☐	☒	
I.10	Exterior lighting along sidewalks and along/inside of parking lots have automatic controls	☒	☐	☐	
I.11	Motion sensor lights, if used, meet the desired standards (≤16ft. above ground, ≤ 2 150 Watts ea., ≥30° downward angle, etc.)	☐	☐	☒	
J.2	Balconies/patios facing the street are incorporated into the architectural facade of the building and does not encroach the building setback area by more than 25%	☒	☐	☐	
J.3	No ground level patios/decks facing the street unless landscaped screening is present on at least 2 sides of the patio/deck	☒	☐	☐	
J.4	Any exterior stairs leading to a deck or balcony is entirely in the rear yard; any exterior corridors must not be visible from the street, must be within the building footprint and must be covered by the building's roof	☐	☐	☒	
J.5	Minimum 42" wall or railing for rooftop patio/deck; only outdoor furniture permitted	☐	☐	☒	
K.2	Building plans approved by AIA architect *(50,000+ cubic feet)*	☒	☐	☐	
K.3	Photos of at least 4 street views of nearby blocks submitted with this checklist	☒	☐	☐	
K.4	Building design provides human scale, interest, and variety using at least one of the following methods: variation in building form, diversity of windows, emphasis of building entries, and/or variation of materials	☒	☐	☐	
K.5	Technique(s) used to minimize apparent height *(3+ stories)*	☐	☐	☒	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
K.6	If the building is more than 50% wider than adjacent building, one of the following techniques shall be used to minimize the apparent width: articulate the facade with projections or bays, and/or use architectural elements such as porches, bay windows, and covered entries	☐	☐	☒	
K.6+	The total area of windows and doors on the street facing facade(s), including trim, shall not be less than the twenty (20) percent of the total facade minus gable	☒	☐	☐	
K.7	Windows and door area on street facade at least 20% of total facade *(excluding gables);* diagram illustrating compliance submitted with this checklist	☒	☐	☐	
K.8	Building built to front setback line or follow existing pattern *(avg of adjacent properties)*	☒	☐	☐	
K.9	The building's square footage is less than three times as large as nearest single family residence and is no more than 15' taller (*Washburn Res. District, R-2 District, TND, or in R-3 to R-6 Districts w/ 50%+ parcels zoned R-1)*	☐	☐	☒	
K.10	Received DRC review and approval prior to submittal to the Heritage Preservation Commission for its review and approval *(Historic Districts or adjacent to any designated historic building)*	☐	☐	☒	
L.2	Primary entrance is on front elevation and faces street	☐	☒	☐	
L.3	No more than two entrances per facade *(except in row houses, and in that case, row house entrance requirements are met)*	☐	☐	☒	
L.4	Building entrances emphasized	☒	☐	☐	
L.5	Main entrances covered at least 3 feet	☒	☐	☐	
M.2	All wall openings articulated	☒	☐	☐	
M.3a	Windows keep with the architectural character of the building	☒	☐	☐	
M.3b	Windows have an interior locking or securing mechanism	☒	☐	☐	
M.3c	Windows that open come with an insect resistant screen	☒	☐	☐	
M.4a	Exterior entry doors for individual units are residential in style and are solid or insulated; if there is not a translucent window lower than 5', it must have a security peephole	☐	☐	☒	
M.4b	Exterior doors have hardware matching the style of the building	☐	☐	☒	
M.4c	Sliding doors have an insect resistant screen door	☒	☐	☐	
M.4e	If a garage or accessory building entry door faces a street, alley or public sidewalk it is residential in style	☐	☐	☒	
M.4f	No sliding doors onto patios on the front facade	☐	☒	☐	
N.2	Gable ends 25' or wider have at least a 5/12 pitch with eaves extend 24" and rakes extend 12" beyond exterior wall; if there are eaves, they must be 18" for a 6/12 pitch roof or less	☒	☐	☐	
N.3	Pitched roofs at least 5/12 pitch and at least one gable facing street	☒	☐	☐	
N.4	Flat roofs use parapet walls with appropriate details	☐	☐	☒	
N.5	Large roof, ≥forty (40) ft., articulated with features to minimize apparent bulk: dormers, shifts in height, cupolas, eyebrows, chimneys, or other features	☐	☒	☐	
N.5+	Stormwater from gutters or roof drains do not drain onto sidewalks or neighboring properties.	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
O.2	The use of identical materials on all sides of building or higher quality materials on street facing facade(s) and complementary materials on non-street sides	☒	☐	☐	
O.3	Use of decorative accessories and trim in the form of *frieze* boards, vertical corner trim, drip caps, gable vents, shingles, and shakes	☒	☐	☐	
O.4	Exterior finish materials do not include vinyl less than 0.44 thick, plywood, chipboard, T1-11, asphalt siding, or smooth-faced concrete block	☒	☐	☐	
O.5	Changes in color and materials occur between horizontal bands to establish "base", "middle," and "top," of building	☒	☐	☐	
O.6	Natural wood is painted or stained (except cedar, redwood, or other naturally weather resistant species & is intended to be exposed); treated wood is painted or stained	☐	☐	☒	
O.7a	Color and design is in general harmony with the overall existing neighborhood and energy use conscious	☒	☐	☐	
O.7b	Neutral or natural colors used for primary siding with brighter or darker colors for accent and trim	☒	☐	☐	
O.7c	Complimentary multi-color and textured roofing materials that are interesting and cooler in summer months	☐	☐	☒	
O.7d	Location on the lot and exterior design is balanced and fits with the natural landscape of the lot and the general neighborhood	☒	☐	☐	
P.2	No street-facing garages on lot served by alley	☒	☐	☐	
P.3	Total width of garage doors facing street ≤ 50% of building width	☐	☐	☒	
P.4	Garages, carports, & accessory buildings are architecturally compatible and use the same finish materials as the primary building	☒	☐	☐	
P.5	Garages have at least one window, containing no less than 576 square inches per 2 stalls	☐	☒	☐	
P.6	Unattached garages shall have at least one service door	☐	☐	☒	
Q.2	Soundproofing used in all shared interior walls and floors and have a STC that meet sec. 1207 of the IBC	☒	☐	☐	
Q.3	Buildings and sites qualify for LEED for Homes certification *(30 of the possible 108 points on checklist)*	☐	☒	☐	
R.2	Long-term maintenance program for all exterior aspects of development	☒	☐	☐	




409




3630 Calvert Rd
3634 Calvert Rd
La Crosse, Wisconsin
Google Street View
Jun 2023
See more dates
Google Maps


3630 Calvert Rd
3629 Calvert Rd
La Crosse, Wisconsin
Google Street View
Aug 2025
See more dates
Share
Google Maps
Image capture: Aug 2025
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Privacy
Report a problem


3630 Calvert Rd
3622 Calvert Rd
La Crosse, Wisconsin
Google Street View
Aug 2025
See more dates
Share
Calvert Rd
Google Maps
Image capture: Aug 2025
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SYMBOLS

KEYNOTE REFERENCE:

KEYNOTE NUMBER — NO.

HEIGHT REFERENCE:

REFERENCE POINT ELEVATION — CEILING 10'-0"

DETAIL REFERENCE:

DRAWING NUMBER / SHEET NUMBER — 12 / A3

REVISION INDICATOR:

REVISION NUMBER — 2

SECTION REFERENCE:

DRAWING NUMBER / SHEET NUMBER — 3 / A2

WALL TYPE REFERENCE:

WALL TYPE — A

ELEVATION REFERENCE:

DRAWING NUMBER / SHEET NUMBER — 2 / A4

LINE TYPES:

CENTER LINE
HIDDEN LINE
LEASE LINE
STRUCTURE C.L.

ABBREVIATIONS

A.F.F.	ABOVE FINISHED FLOOR
ACOUS.	ACOUSTICAL
ADJ.	ADJUSTABLE
AL.	ALUMINUM
BTM.	BOTTOM
C.L.	CENTER LINE
CER.	CERAMIC
CONSTR.	CONSTRUCTION
CTR.	CENTER
CL.	CLEAR
COL.	COLUMN
CONT.	CONTINUOUS
DWG.	DRAWING
ELEC.	ELECTRICAL
ELEV.	ELEVATION
EQ.	EQUAL
EXIST.	EXISTING
E.J.	EXPANSION JOINT
F.D.	FLOOR DRAIN
FDN	FOUNDATION
FTG.	FOOTING
G.C.	GENERAL CONTRACTOR
GA.	GAUGE
GEN.	GENERAL
GYP. BD.	GYPSUM BOARD
HC	HOLLOW CORE
H.M.	HOLLOW METAL
LAM.	LAMINATE
MAX.	MAXIMUM
MATL.	MATERIAL
MTL.	METAL
MIN.	MINIMUM
O.C.	ON CENTER
SC	SOLID CORE
STD.	STANDARD
V.I.F.	VERIFY IN FIELD

CODE INFORMATION

BUILDING TYPE:
R2 - APARTMENT

CONSTRUCTION TYPE:
VB - FULLY SPRINKLERED, PER NFPA 13R

BUILDING AREA AND HEIGHT:
- ALLOWABLE - 3 STORIES, 7,000 SF/ FLOOR
- ACTUAL - FIRST FLOOR - 7,812 SF
  SECOND FLOOR - 7,812 SF

FRONTAGE INCREASE FACTOR:
TABLE 506.3.3:
> OPEN SPACE:
20' TO < 25'
> % OF BUILDING PERIMETER:
25 TO < 50
> INCREASE: 0.17
0.17 X 7,000 = 1,190 SF
7,000 + 1,190 = 8,190 ALLOWABLE
7,812 SF < 8,190 SF ACTUAL

TRAVEL DISTANCE TO EXIT:
- 250' WITH SPRINKLER

NUMBER OF EXITS:
- MINIMUM 2 REQUIRED
- 2 EXITS PROVIDED

EXIT WIDTH:
- 0.2" PER OCCUPANT - 72" ACTUAL

FIRE-RESISTANCE RATINGS, TYPE VB:
- IBC TABLE 601 - BEARING WALLS:
  - EXTERIOR - 0-HR
  - INTERIOR - 0-HR

MAXIMUM AREA OF EXTERIOR WALL OPENINGS:
- IBC TABLE 705.8
  - ALLOWABLE - 30' OR GREATER - NO LIMIT

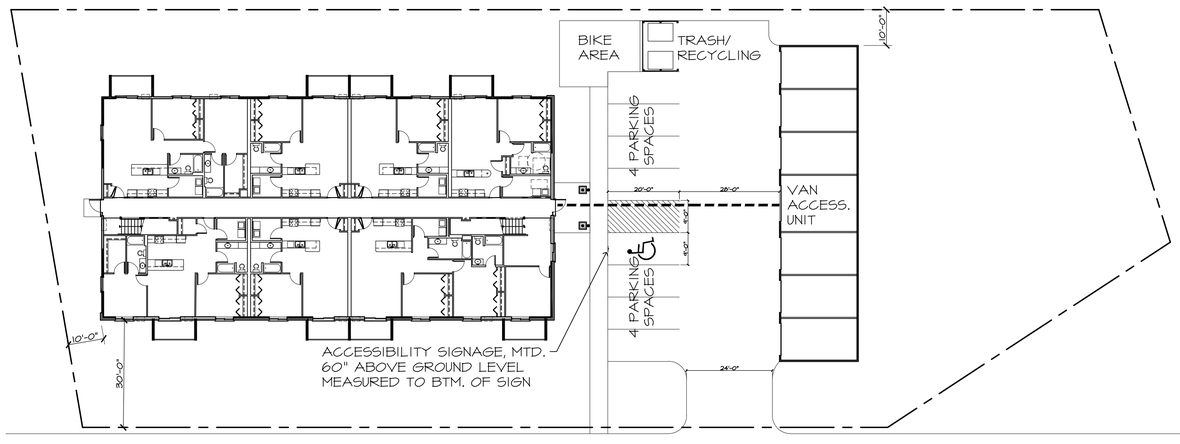
NICOLAI APARTMENTS

BUILDING & GARAGE REVIEW

15 UNIT APARTMENT COMPLEX
3629 Calvert Road
La Crosse, Wisconsin 54601

WISCONSIN — KEVIN TIMMERMAN — E-35037 — LA CROSSE, WISCONSIN — ARCHITECT
03.10.26

WISCONSIN — ANDREW D. CLEMENTS — E-36649-6 — LA CROSSE, WI — PROFESSIONAL ENGINEER
Andrew D. Clements
03.10.26



1 / T1 SITE PLAN
1" = 20'-0"

NORTH

GENERAL NOTES

* OCCUPANCY - R2 APARTMENT
* CONSTRUCTION - TYPE VB
* SOIL BEARING - 2000 PSF (ASSUMED)
* CONCRETE - 3000 PSI TO COMPLY W/ ASTM C94
* STEEL - TO COMPLY W/ ASTM A36
* LUMBER - 2 X 4 STANDARD & BETTER
  2 X 6 #2 SPF
  2 X 8 & LARGER - #2 D.F.
* STRUCTURE TO BE CONSTRUCTED IN ACCORDANCE WITH 2021 INTERNATIONAL BUILDING CODE, SECTION 2308 - CONVENTIONAL LIGHT-FRAME CONSTRUCTION.
* FIRST FLOOR CEILING TO HAVE 5/8" TYPE 'C' GWB ON CHANNELS, 16" O.C. SECOND FLOOR CEILING TO HAVE 5/8" GWB APPLIED DIRECT TO TRUSSES
* BATH EXHAUST - SYSTEM TO BE 50 CFM.
* ATTIC VENTILATION - NET FREE AREA NOT LESS THAN 1/300 OF VENTILATION AREA.
* ROOF TRUSSES - DESIGN FOR 40# L.L. BY REGISTERED WISCONSIN ENGINEER AND ANCHORED TO WALL ACCORDINGLY.
* EACH BEDROOM SHALL BE PROVIDED WITH AN EGRESS WINDOW COMPLYING W/ IBC SECT. 1029.2, STYLE TO BE SLIDE-BY, MIN. CLEAR OPENING WIDTH OF 20" AND HEIGHT OF 24".
* WALL AND FLOOR CONSTRUCTION TO MEET SOUND TRANSMISSION CLASS OR NOT LESS THAN 50 FOR AIR BORNE NOISE PER IBC 1207.2.
* INTERIOR WALL AND CEILING FINISHES TO MEET CLASSIFICATIONS AS SPECIFIED IN IBC TABLE 803.13, CLASS C RATING FOR SPRINKLERED STRUCTURE.
* FIRE EXTINGUISHERS SHALL BE PROVIDED PER IBC SECT. 906 AND MAINTAINED PER NFPA 13R. LOCATION PER LOCAL FIRE MARSHAL.
* MANUAL FIRE ALARM SYSTEM REQUIRED THROUGHOUT STRUCTURE.
* PROVIDE INTERCONNECTED SMOKE ALARMS IN EACH BEDROOM, OUTSIDE EACH SLEEPING AREA AND ON EACH STORY WITHIN THE DWELLING UNIT.
* RATED WALLS TO HAVE 1-HR RATED DOOR ASSEMBLIES (1-HR FRAMES AND 20 MINUTE DOORS) WITH AUTOMATIC CLOSERS. DOORS TO BE LABELED 'TYPE S'.
* INTERIOR DOORS TO BE PRE-HUNG 3-PANEL DOORS.
* ALL DOOR HARDWARE TO MEET ICC/ANSI A117.1 Sec. 404.2.6 FOR OPERABILITY.
* WINDOW OPENINGS:
  - LARGEST LIVING ROOM - UNIT #102
    450 SF X 4% = 17.2 SF REQ'D, 20.0 SF PROVIDED
  - LARGEST BEDROOM - UNIT #102
    183 SF X 4% = 7.32 SF REQ'D, 10.0 SF PROVIDED
* CONTRACTOR TO PROVIDE ADEQUATE BLOCKING FOR ALL WALL HUNG VANITIES, REQUIRED GRAB BARS AND TOWEL BARS PER OWNER'S REQUIREMENTS.
* FIREBLOCKING SHALL BE PROVIDED IN CONCEALED SPACES BETWEEN STAIR STRINGERS AT THE TOP AND BOTTOM OF EACH RUN.

CONSTRUCTION NOTES

ANY DISCREPANCIES BETWEEN THE CONSTRUCTION DOCUMENTS AND THE ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH ANY WORK.

THE CONTRACTOR SHALL REVIEW ALL DOCUMENTS AND VERIFY ALL DIMENSIONS AND FIELD CONDITIONS AND SHALL CONFIRM THAT WORK IS BUILDABLE AS SHOWN. ANY CONFLICTS OR OMISSIONS, ETC., SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT FOR CLARIFICATION PRIOR TO THE PERFORMANCE OF ANY WORK IN QUESTION.

THE CONTRACTOR SHALL MAINTAIN FOR ENTIRE DURATION OF THE WORK ALL EXITS, EXIT LIGHTING, FIRE PROTECTION DEVICES AND ALARMS IN CONFORMANCE WITH ALL AP-PLICABLE CODES AND ORDINANCES.

'TYP.' SHOULD MEAN THAT THE CONDITION IS REPRESENTATIVE FOR SIMILAR CONDITIONS THROUGHOUT UNLESS OTHERWISE NOTED, DETAILS ARE USUALLY KEYED AND NOTED 'TYP.' ONLY ONCE WHEN THEY FIRST OCCUR.

DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.

EACH CONTRACTOR SHALL LEAVE THE SITE IN A NEAT, CLEAN AND ORDERLY CONDITION UPON THE COMPLETION OF HIS WORK ON A DAILY BASIS. ALL WASTE, RUBBISH AND EXCESS MATERIALS SHALL BE REMOVED FROM THE SITE PROMPTLY. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF ALL TRASH FOR THE DURATION OF THE PROJECT.

CONTRACTOR TO PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2-A OR 2-A/10BC WITHIN 75' TRAVEL DISTANCE TO ALL PORTIONS OF THE BUILDING DURING CONSTRUCTION.

DRAWING INDEX

T1 TITLE SHEET, GENERAL NOTES, SYMBOLS, ABBREVIATIONS, SITE PLAN, DRAWING INDEX

A1 FIRST FLOOR PLAN
SECOND FLOOR PLAN

A1.1 ENLARGED FIRST FLOOR PLAN - LEFT HALF
WALL TYPES

A1.2 ENLARGED FIRST FLOOR PLAN - RIGHT HALF
WALL TYPES

A2 SECOND FLOOR PLAN
WALL TYPES

A3 EXTERIOR ELEVATIONS
ENLARGED KITCHEN & BATH PLAN
CASEWORK ELEVATIONS
STANDARD MOUNTING HEIGHTS

A4 BUILDING SECTIONS

A4.1 BUILDING SECTION
WALL SECTIONS
CONSTRUCTION DETAILS

A5 GARAGES:
- FOOTING & FOUNDATION PLANS
- FLOOR PLANS
- EXTERIOR ELEVATIONS
- BUILDING SECTION

S1 FOOTING AND FOUNDATION PLAN
CONSTRUCTION DETAILS

S2 FLOOR FRAMING PLAN
ROOF FRAMING PLAN
SNOW & DRIFT LOAD INFORMATION

MECHANICAL/ELECTRICAL/PLUMBING - DESIGN BUILD SUBMITTED/PERMITTED UNDER SEPARATE COVER

5th Avenue Design

504 5TH AVENUE S.
LA CROSSE, WI 54601

TEL 608-780-5075

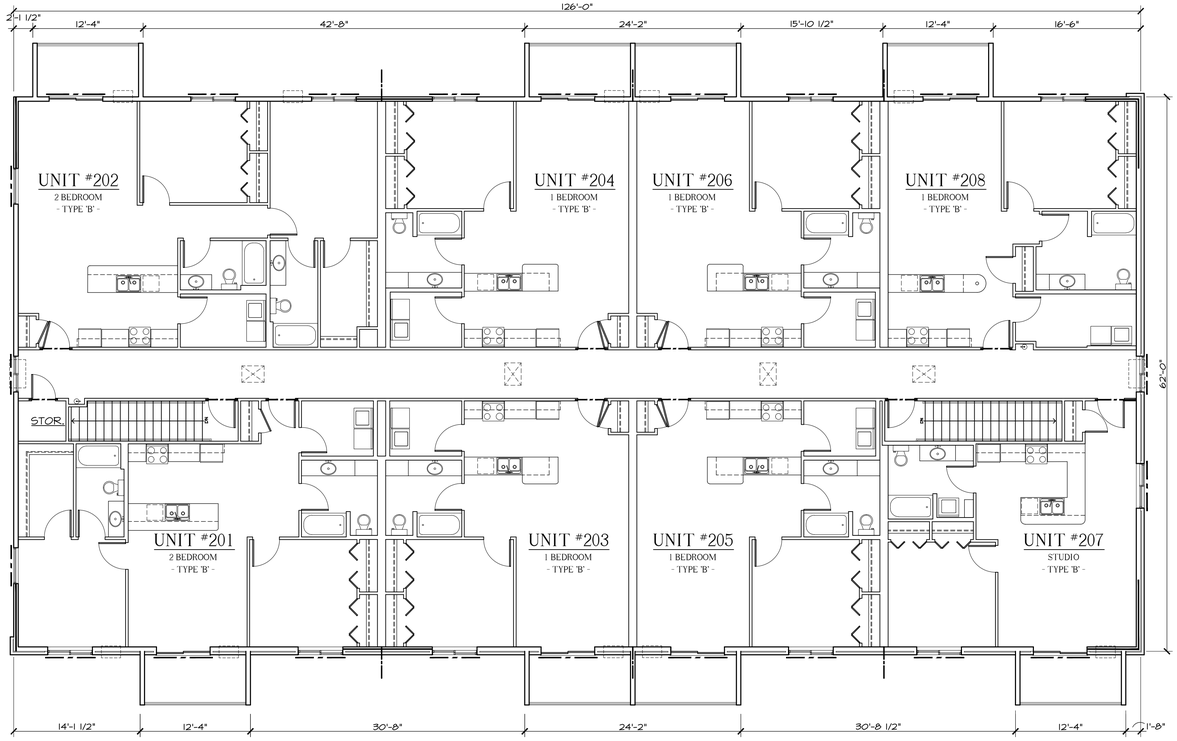
SITE PLAN
GENERAL NOTES
CONSTRUCTION NOTES
CODE INFORMATION
DRAWING INDEX

DATE : 03.10.26
DRAWN BY : KKT
CHECKED BY : AN/SN
REVISIONS :

Nicolai Apartments

3629 Calvert Road
La Crosse, WI 54601

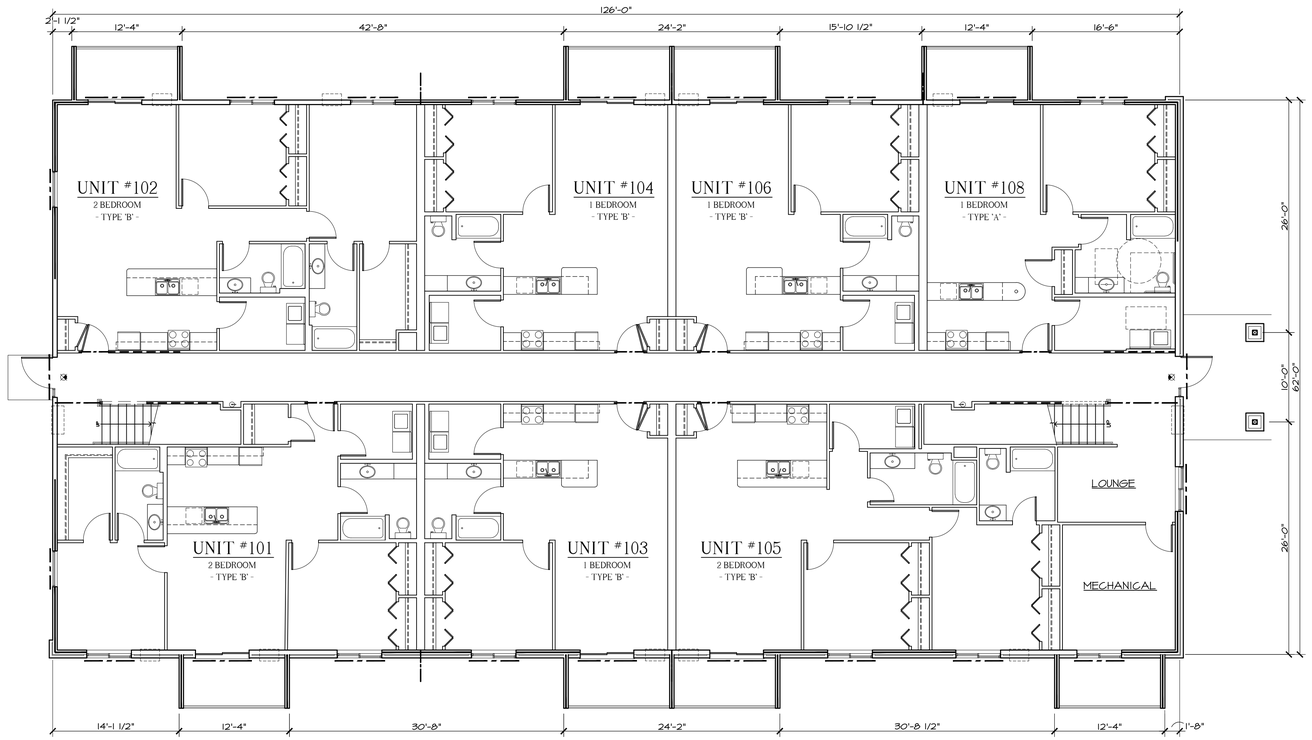
T1



2 / A1 SECOND FLOOR PLAN

1/8" = 1'-0"

NORTH



1 / A1 FIRST FLOOR PLAN

1/8" = 1'-0"

NORTH

5th Avenue Design

504 5TH AVENUE S.
LA CROSSE, WI 54601

TEL 608·780·5075

FIRST FLOOR PLAN
SECOND FLOOR PLAN

DATE : 03.10.26

DRAWN BY : KKT

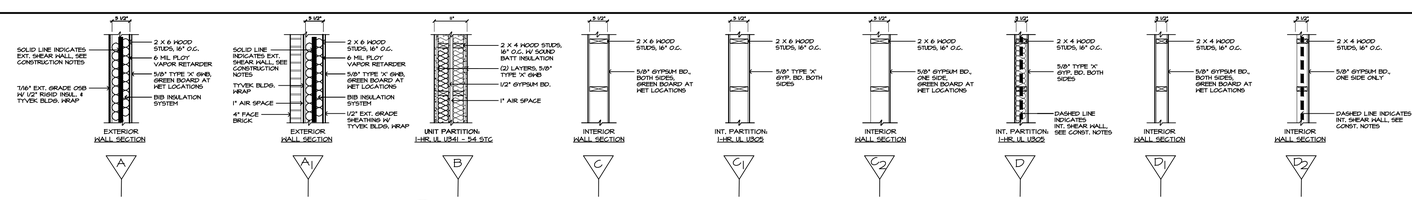
CHECKED BY : NA/SN

REVISIONS :

Nicolai Apartments

3629 Calvert Road
La Crosse, WI 54601

A1



HEADER SCHEDULE:

H-1	2-PLY - 2 X 10 DFL #1	(1) JACK STUDS	(1) KING STUDS
H-2	2-PLY - 2 X 12 DFL #1	(2) JACK STUDS	(2) KING STUDS
H-3	3-PLY - 2 X 12 DFL #1 OR 2-PLY - 1 3/4" X 9 1/4" LVL 2.0E	(2) JACK STUDS (2) JACK STUDS	(2) KING STUDS (2) KING STUDS
H-4	2-PLY - 1 3/4" X 11 1/4" LVL 2.0E	(2) JACK STUDS	(2) KING STUDS

LINTELS AT WINDOWS WITH BRICK: 3 1/2" X 3 1/2" X 1/4" GALVANIZED ANGLE

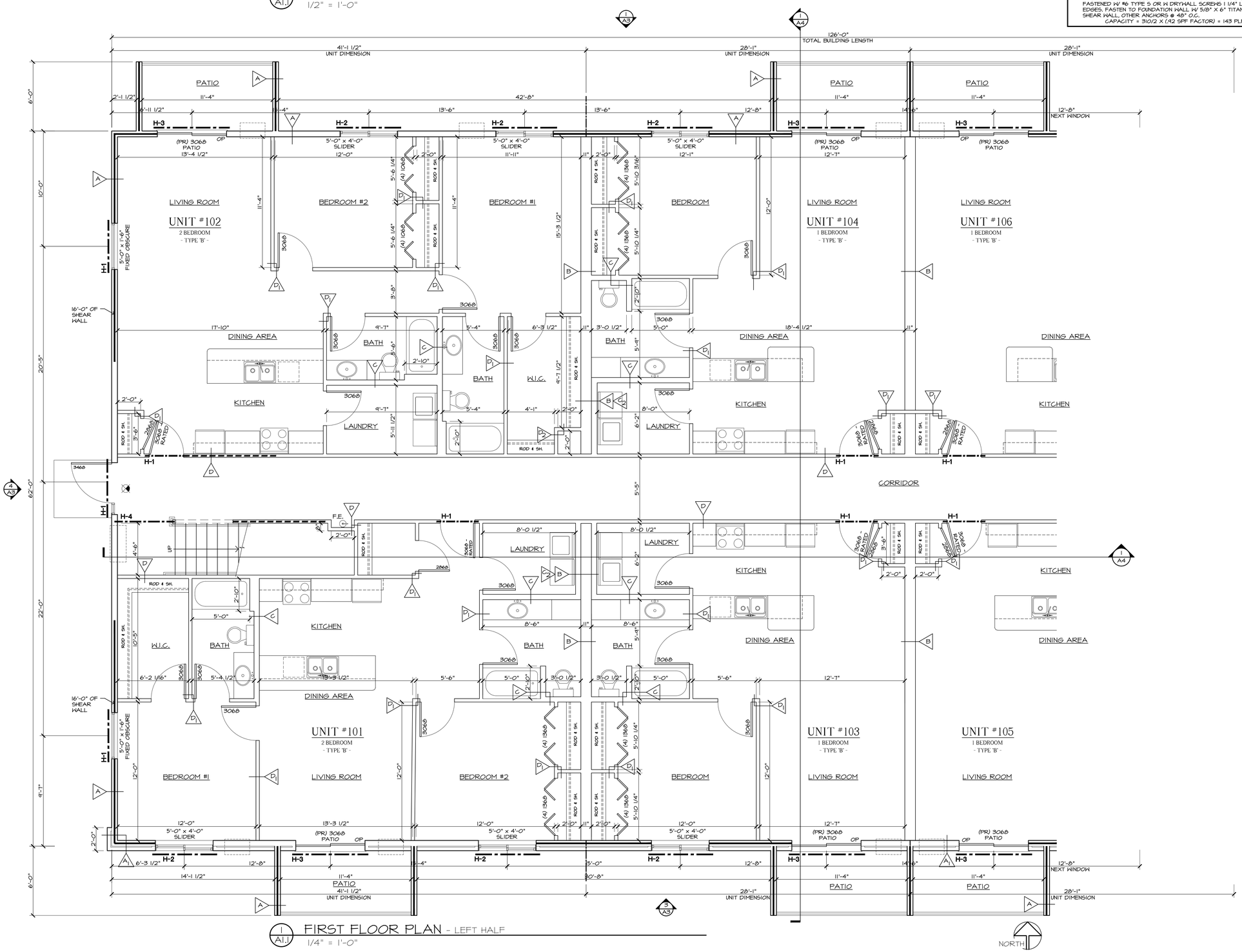
EXTERIOR SHEAR WALLS:

- EXTERIOR SHEAR WALLS PER AMERICAN WOOD COUNCIL SDPWS 2015 EDITION TABLE 4.3A. 15/32" OSB SHEATHING NAILED W/ 10d NAILS W/ 1 1/2" PENETRATION, BLOCKED. NAILS @ 6" O.C. PERIMETER & INTERMEDIATE. FASTEN TO FOUNDATION WALL W/ 5/8" X 6" TITAN ANCHORS W/ 4 1/2" EMBEDMENT. FIRST ANCHOR @ END OF SHEAR WALL, OTHER ANCHORS @ 32" O.C.
  CAPACITY = 870/2 X (.92 SPF FACTOR) = 400 PLF

INTERIOR SHEAR WALLS:

- INTERIOR SHEAR WALLS PER AMERICAN WOOD COUNCIL SDPWS 2015 EDITION TABLE 4.3C. 1/2" GYPSUM WALL BOARD FASTENED W/ #6 TYPE S OR W DRYWALL SCREWS 1 1/4" LONG @ 4" O.C. PERIMETER & 12" O.C. INTERMEDIATE, BLOCKED @ EDGES. FASTEN TO FOUNDATION WALL W/ 5/8" X 6" TITAN ANCHORS W/ 4 1/2" EMBEDMENT. FIRST ANCHOR @ END OF SHEAR WALL, OTHER ANCHORS @ 48" O.C.
  CAPACITY = 310/2 X (.92 SPF FACTOR) = 143 PLF

2 A1.1 WALL TYPES
1/2" = 1'-0"



1 A1.1 FIRST FLOOR PLAN - LEFT HALF
1/4" = 1'-0"

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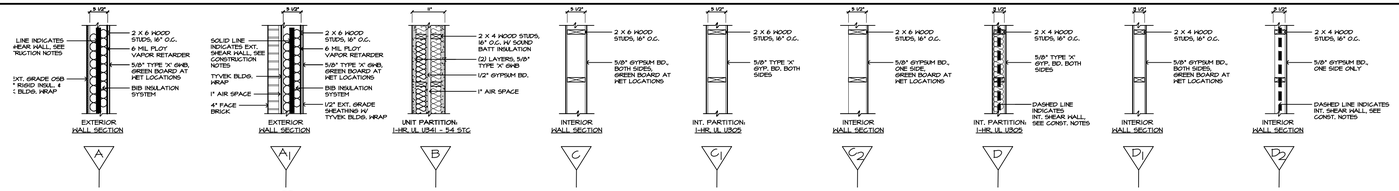
FIRST FLOOR PLAN - LEFT HALF
WALL TYPES

DATE : 03.10.26
DRAWN BY : KKT
CHECKED BY : NA/SN
REVISIONS :

Nicolai Apartments

3629 Calvert Road
La Crosse, WI 54601

A1.1



HEADER SCHEDULE:

H-1	2-PLY - 2 X 10 DFL #1	(1) JACK STUDS	(1) KING STUDS
H-2	2-PLY - 2 X 12 DFL #1	(2) JACK STUDS	(2) KING STUDS
H-3	3-PLY - 2 X 12 DFL #1	(2) JACK STUDS	(2) KING STUDS
	OR,		
	2-PLY - 1 3/4" X 9 1/4" LVL 2.0E	(2) JACK STUDS	(2) KING STUDS
H-4	2-PLY - 1 3/4" X 11 1/4" LVL 2.0E	(2) JACK STUDS	(2) KING STUDS

LINTELS AT WINDOWS WITH BRICK: 3 1/2" X 3 1/2" X 1/4" GALVANIZED ANGLE

EXTERIOR SHEAR WALLS:

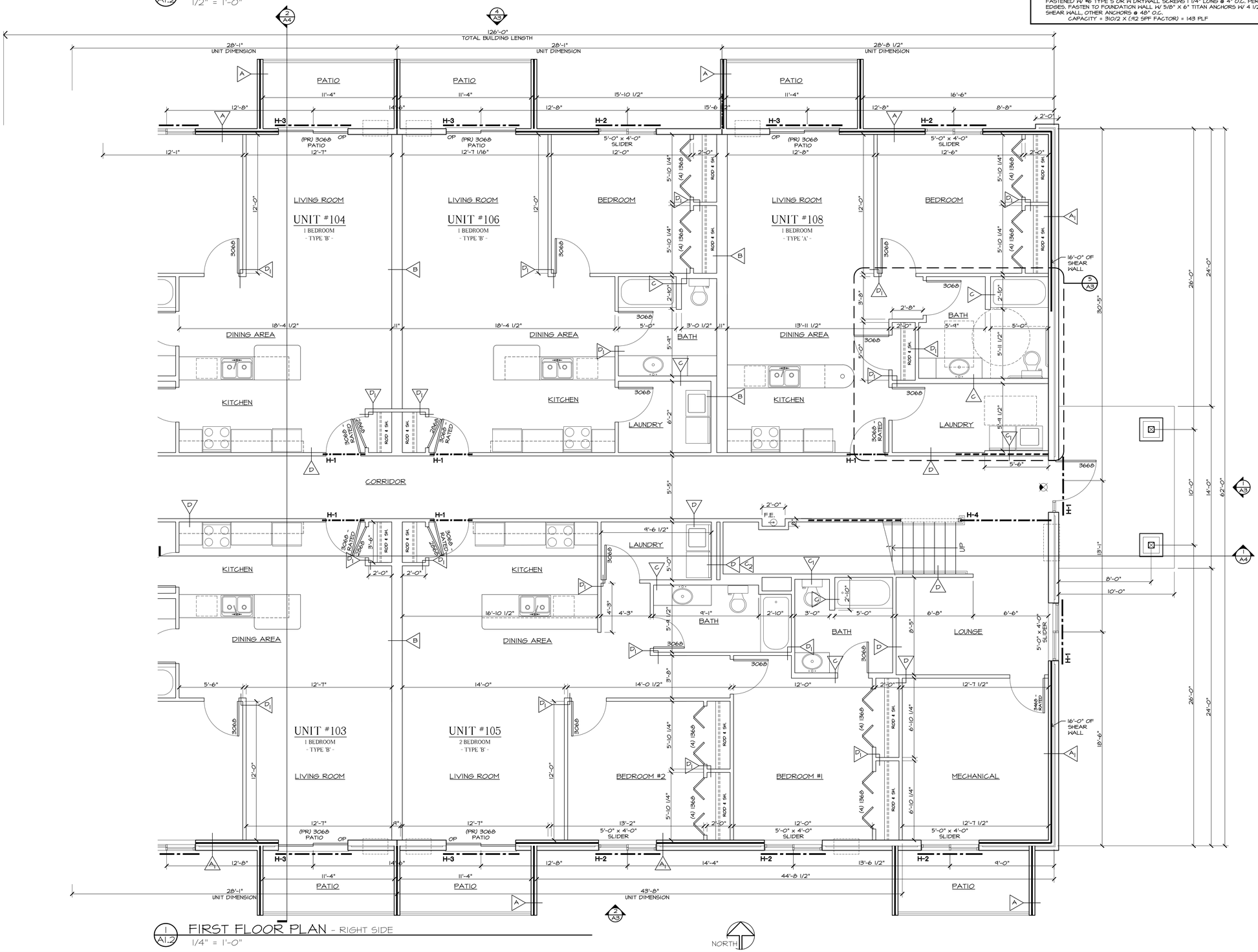
- EXTERIOR SHEAR WALLS PER AMERICAN WOOD COUNCIL SDPWS 2015 EDITION TABLE 4.3A: 15/32" OSB SHEATHING NAILED W/ 10d NAILS W/ 1 1/2" PENETRATION, BLOCKED. NAILS @ 6" O.C. PERIMETER & INTERMEDIATE. FASTEN TO FOUNDATION WALL W/ 5/8" X 6" TITAN ANCHORS W/ 4 1/2" EMBEDMENT, FIRST ANCHOR @ END OF SHEAR WALL, OTHER ANCHORS @ 32" O.C.
  CAPACITY = 870/2 X (.92 SPF FACTOR) = 400 PLF

INTERIOR SHEAR WALLS:

- INTERIOR SHEAR WALLS PER AMERICAN WOOD COUNCIL SDPWS 2015 EDITION TABLE 4.3C, 1/2" GYPSUM WALL BOARD FASTENED W/ #6 TYPE S OR W DRYWALL SCREWS 1 1/4" LONG @ 4" O.C. PERIMETER & 12" O.C. INTERMEDIATE, BLOCKED @ EDGES. FASTEN TO FOUNDATION WALL W/ 5/8" X 6" TITAN ANCHORS W/ 4 1/2" EMBEDMENT, FIRST ANCHOR @ END OF SHEAR WALL, OTHER ANCHORS @ 48" O.C.
  CAPACITY = 310/2 X (.92 SPF FACTOR) = 143 PLF

2 / A1.2 WALL TYPES

1/2" = 1'-0"



1 / A1.2 FIRST FLOOR PLAN - RIGHT SIDE

1/4" = 1'-0"

NORTH

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FIRST FLOOR PLAN - RIGHT HALF
WALL TYPES

DATE : 03.10.26

DRAWN BY : KKT

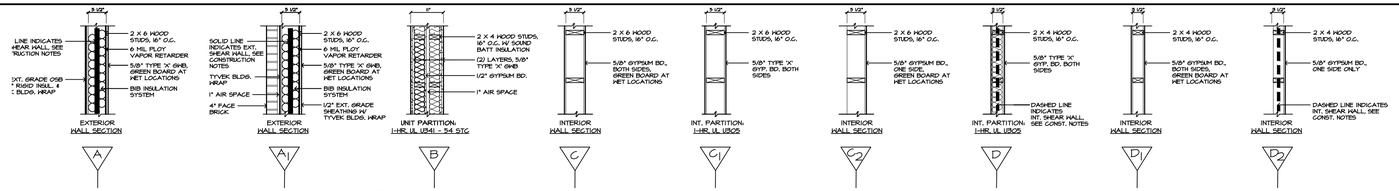
CHECKED BY : NA/SN

REVISIONS :

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La Crosse, WI 54601

A1.2



HEADER SCHEDULE:

H-1	2-PLY - 2 X 10 DFL #1	(1) JACK STUDS	(1) KING STUDS
H-2	2-PLY - 2 X 12 DFL #1	(2) JACK STUDS	(2) KING STUDS
H-3	3-PLY - 2 X 12 DFL #1 OR 2-PLY - 1 3/4" X 9 1/4" LVL 2.0E	(2) JACK STUDS (2) JACK STUDS	(2) KING STUDS (2) KING STUDS
H-4	2-PLY - 1 3/4" X 11 1/4" LVL 2.0E	(2) JACK STUDS	(2) KING STUDS

LINTELS AT WINDOWS WITH BRICK: 3 1/2" X 3 1/2" X 1/4" GALVANIZED ANGLE

EXTERIOR SHEAR WALLS:

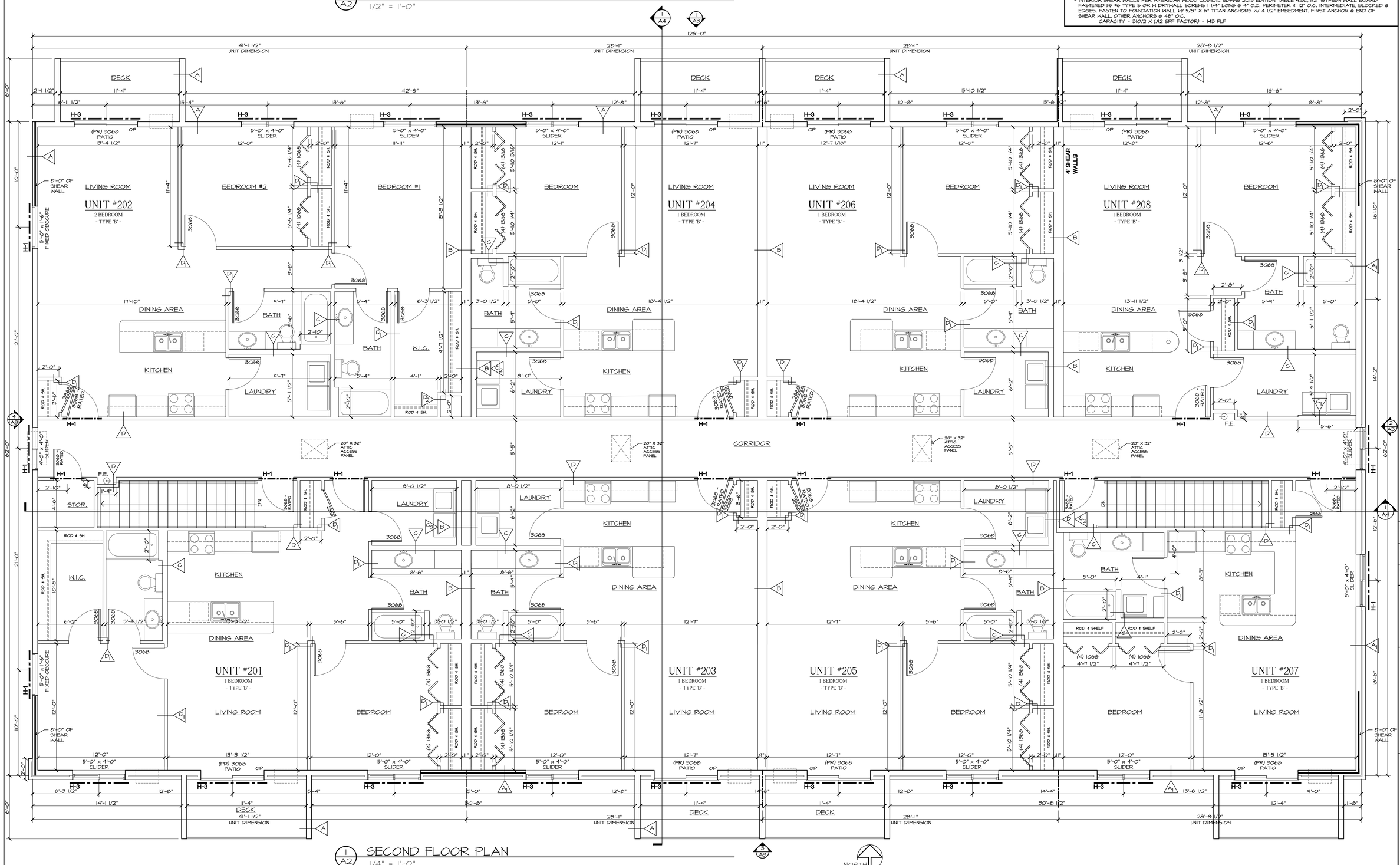
- EXTERIOR SHEAR WALLS PER AMERICAN WOOD COUNCIL SDPWS 2015 EDITION TABLE 4.3A. 15/32" OSB SHEATHING NAILED W/ 10d NAILS W/ 1 1/2" PENETRATION, BLOCKED. NAILS @ 6" O.C. PERIMETER & INTERMEDIATE. FASTEN TO FOUNDATION WALL W/ 5/8" X 6" TITAN ANCHORS W/ 4 1/2" EMBEDMENT. FIRST ANCHOR @ END OF SHEAR WALL, OTHER ANCHORS @ 32" O.C.
  CAPACITY = 870/2 X (.92 SPF FACTOR) = 400 PLF

INTERIOR SHEAR WALLS:

- INTERIOR SHEAR WALLS PER AMERICAN WOOD COUNCIL SDPWS 2015 EDITION TABLE 4.3C, 1/2" GYPSUM WALL BOARD FASTENED W/ #6 TYPE S OR W DRYWALL SCREWS 1 1/4" LONG @ 4" O.C. PERIMETER & 12" O.C. INTERMEDIATE, BLOCKED @ EDGES. FASTEN TO FOUNDATION WALL W/ 5/8" X 6" TITAN ANCHORS W/ 4 1/2" EMBEDMENT. FIRST ANCHOR @ END OF SHEAR WALL, OTHER ANCHORS @ 48" O.C.
  CAPACITY = 310/2 X (.92 SPF FACTOR) = 143 PLF

2 / A2 WALL TYPES

1/2" = 1'-0"



1 / A2 SECOND FLOOR PLAN

1/4" = 1'-0"

NORTH

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SECOND FLOOR PLAN
WALL TYPES

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DRAWN BY : KKT

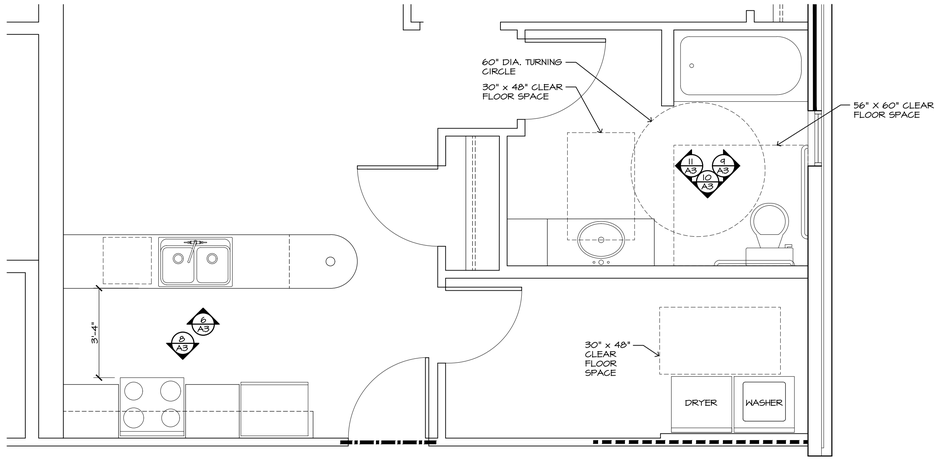
CHECKED BY : NA/SN

REVISIONS :

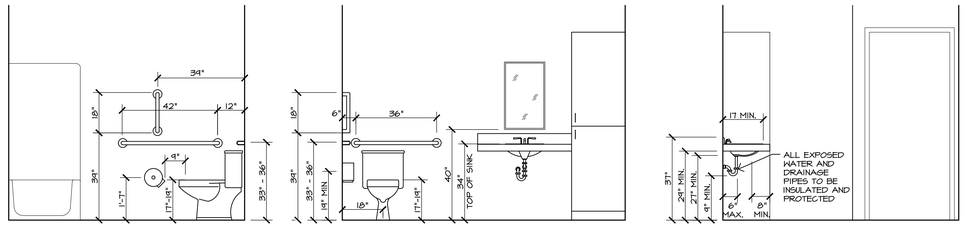
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A2



5 A3 ENLARGED KITCHEN & BATH PLAN
1-BEDROOM TYPE 'A' UNIT



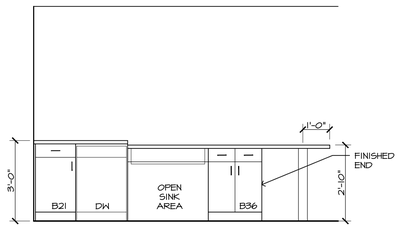
9 A3 ELEVATION
3/8" = 1'-0"

10 A3 ELEVATION
3/8" = 1'-0"

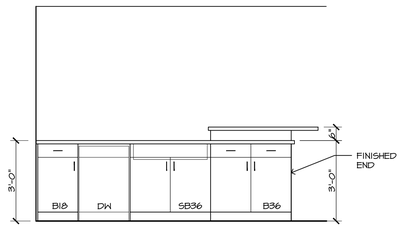
11 A3 ELEVATION
3/8" = 1'-0"

NOTE:
GENERAL CONTRACTOR TO PROVIDE ADEQUATE BLOCKING FOR ALL GRAB BARS IN BOTH TYPE 'A' & 'B' UNITS

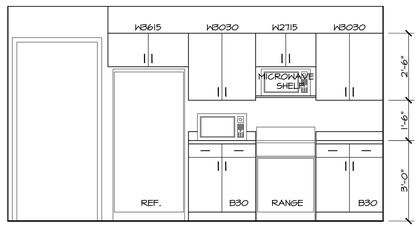
STANDARD MOUNTING HEIGHTS



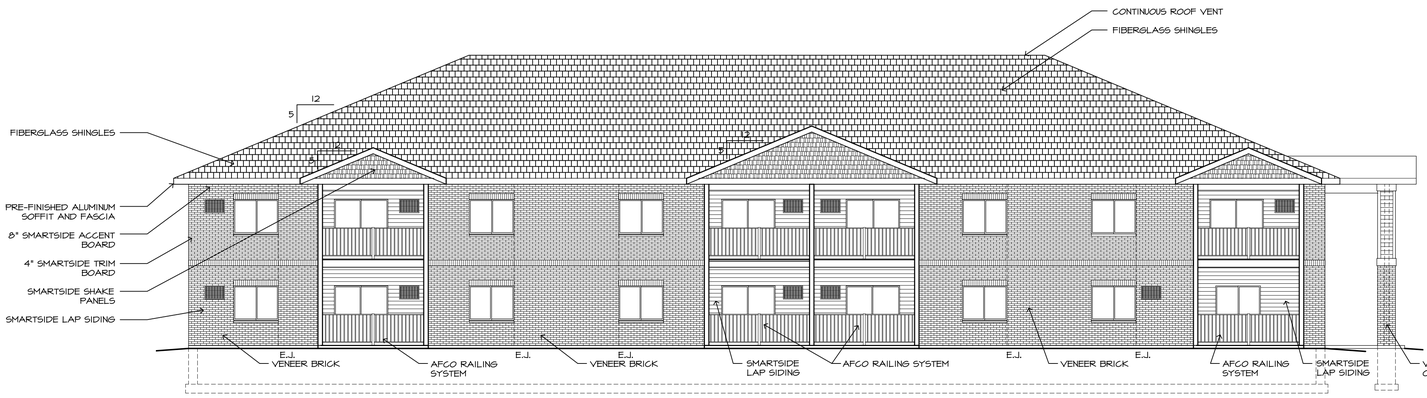
6 A3 KITCHEN ELEVATION
1-BEDROOM TYPE 'A' UNIT



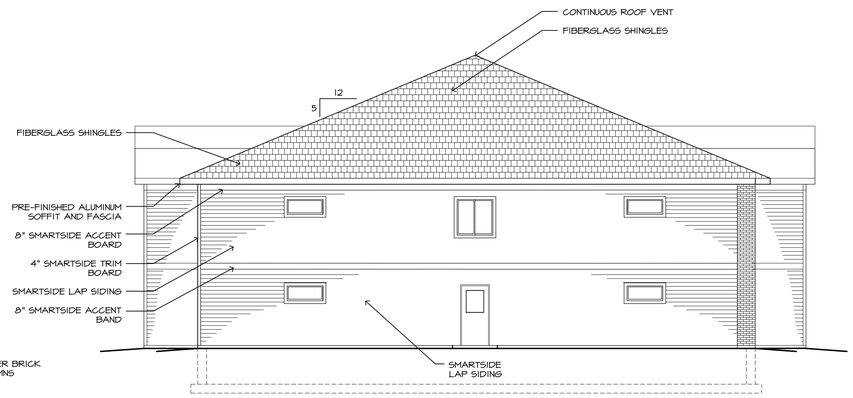
7 A3 KITCHEN ELEVATION
1-BEDROOM TYPE 'B' UNIT



8 A3 KITCHEN ELEVATION
1-BEDROOM TYPE 'B' UNIT
NOTE: MICROWAVE TO BE LOCATED ON TOP OF COUNTER IN 'A' UNIT



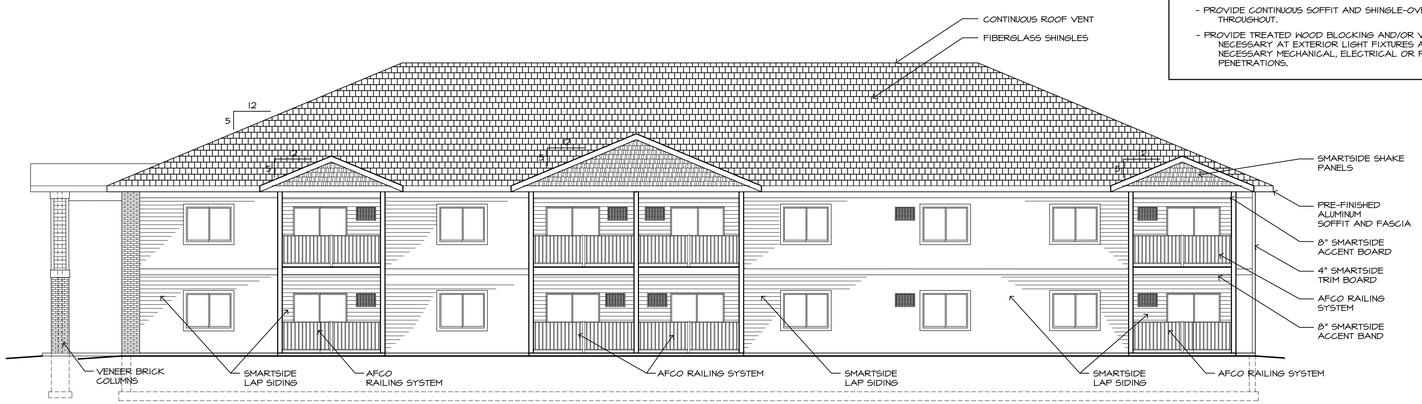
3 A3 SOUTH EXTERIOR ELEVATION
1/8" = 1'-0"



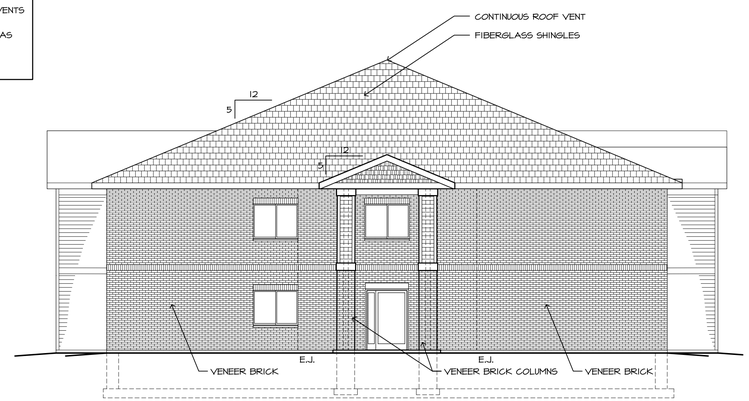
4 A3 WEST EXTERIOR ELEVATION
1/8" = 1'-0"

GENERAL ELEVATION NOTES:

- ALL ROOF PITCHES TO BE 5:12 UNLESS NOTED OTHERWISE.
- ALL FASCIAS AND SOFFITS TO BE PREFINISHED ALUMINUM.
- ALL ROOF SHINGLES TO BE 30 YEAR TEXTURED FIBERGLASS.
- PROVIDE CONTINUOUS SOFFIT AND SHINGLE-OVER RIDGE VENTS THROUGHOUT.
- PROVIDE TREATED WOOD BLOCKING AND/OR VINYL TRIM AS NECESSARY AT EXTERIOR LIGHT FIXTURES AND OTHER NECESSARY MECHANICAL, ELECTRICAL OR PLUMBING PENETRATIONS.



1 A3 NORTH EXTERIOR ELEVATION
1/8" = 1'-0"



2 A3 EAST EXTERIOR ELEVATION
1/8" = 1'-0"

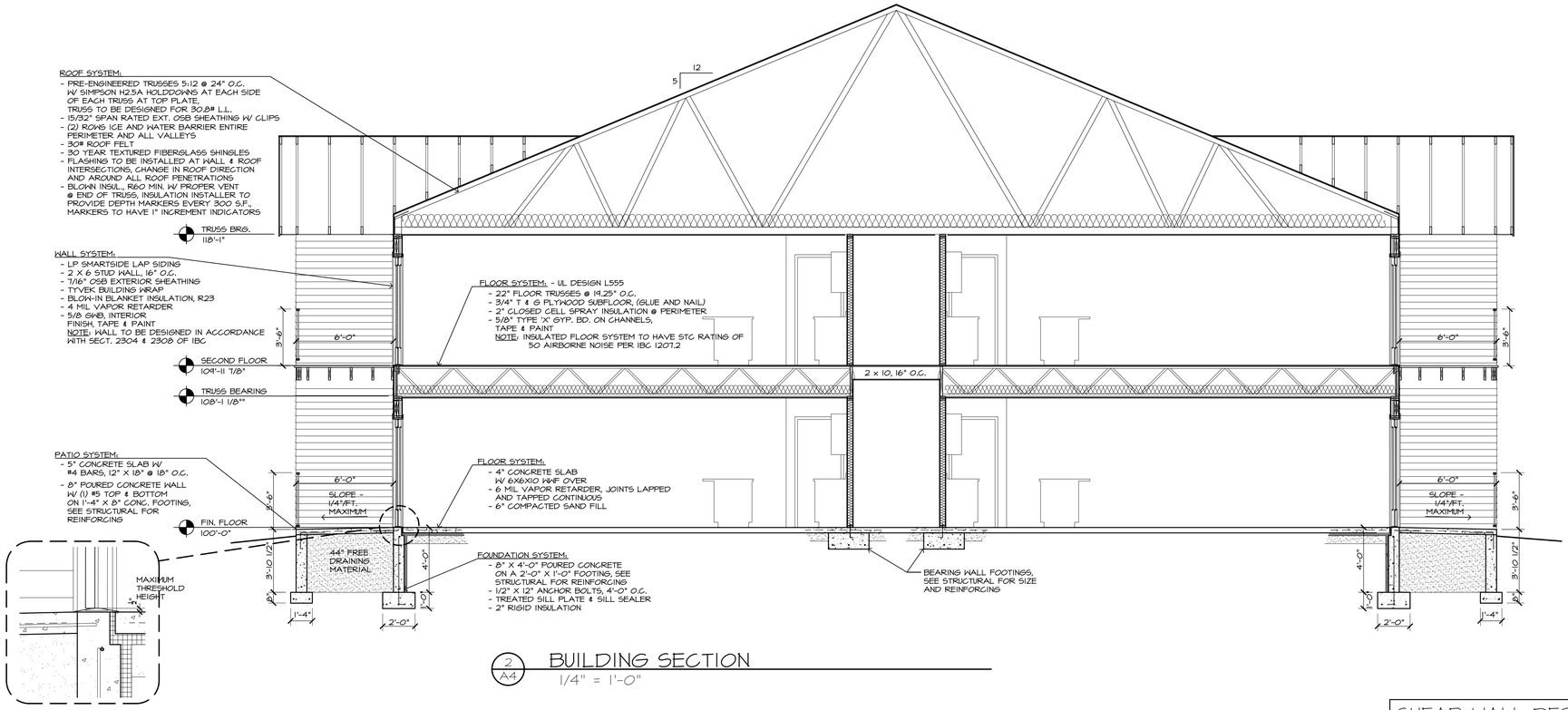
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EXTERIOR ELEVATIONS
ENLARGED KITCHEN & BATH PLAN
CASEWORK ELEVATIONS
STANDARD MOUNTING HEIGHTS

DATE : 03.10.26
DRAWN BY : KKT
CHECKED BY : NA/SN
REVISIONS :

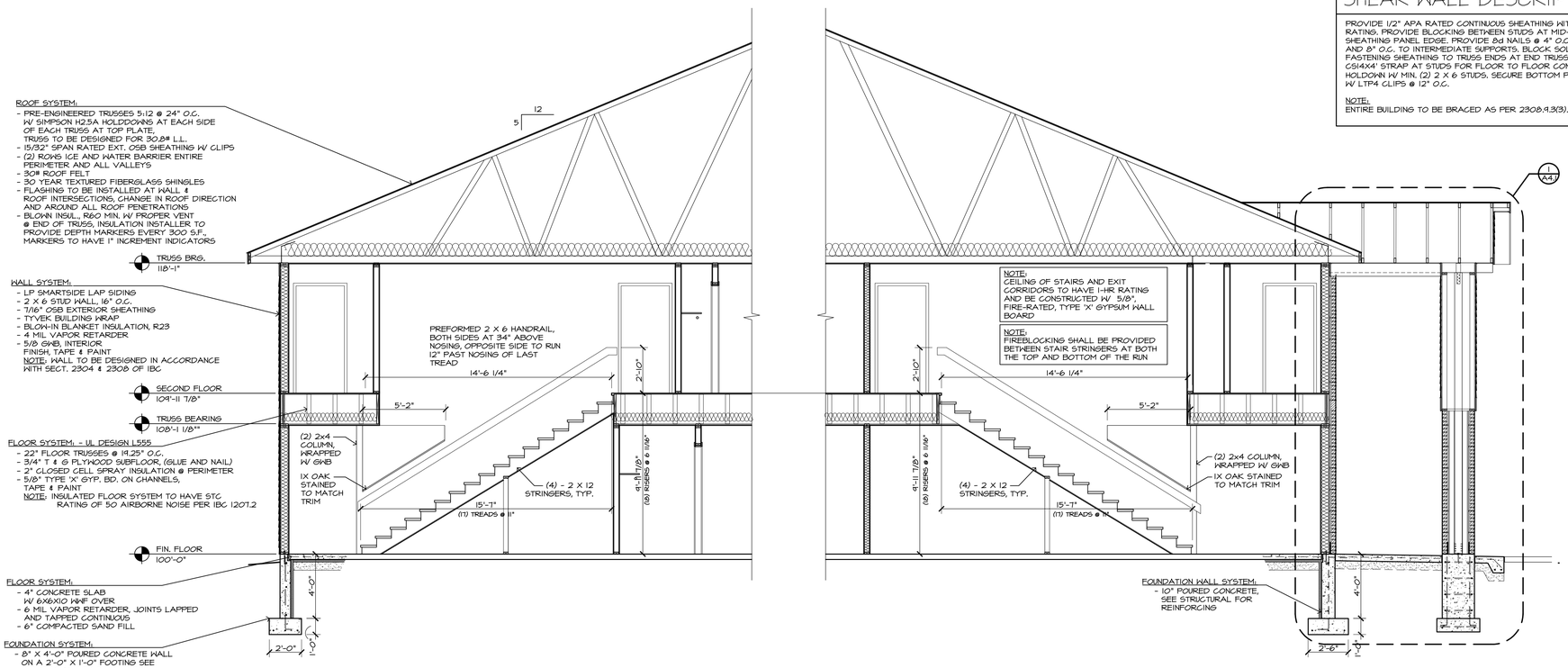
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A3



2 A4 BUILDING SECTION

1/4" = 1'-0"



1 A4 BUILDING SECTION

1/4" = 1'-0"

SHEAR WALL DESCRIPTION

PROVIDE 1/2" APA RATED CONTINUOUS SHEATHING WITH A 24/0 SPAN RATING. PROVIDE BLOCKING BETWEEN STUDS AT MID-HEIGHT PLUS AT SHEATHING PANEL EDGE. PROVIDE 8d NAILS @ 4" O.C. AT PANEL EDGES AND 8" O.C. TO INTERMEDIATE SUPPORTS. BLOCK SOLID BETWEEN FASTENING SHEATHING TO TRUSS ENDS AT END TRUSS BLOCKING. USE CS14X4' STRAP AT STUDS FOR FLOOR TO FLOOR CONNECTION. USE HDU-2 HOLDOWN W/ MIN. (2) 2 X 6 STUDS. SECURE BOTTOM PLATE TO RIM JOIST W/ LTP4 CLIPS @ 12" O.C.

NOTE:
ENTIRE BUILDING TO BE BRACED AS PER 2308.9.3(3).

5th Avenue Design

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BUILDING SECTIONS

DATE : 03.10.26

DRAWN BY : KKT

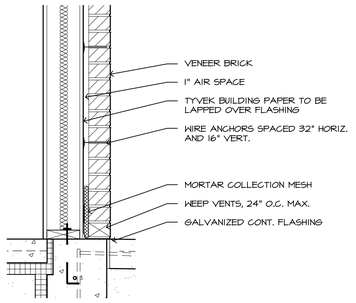
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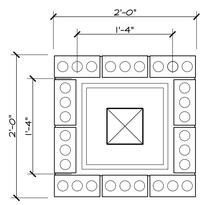
Nicolai Apartments

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La Crosse, WI 54601

A4

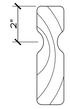


3 A4.1 DETAIL
1" = 1'-0"

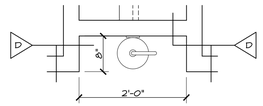


PIER SYSTEM:
- 6 X 6 TREATED WOOD POSTS, WRAPPED LP SMARTSIDE BOARDS
- SIMPSON CCQ3-6SDS2.5 COLUMN CAPS
- SIMPSON ABU66Z COLUMN BASE
- 2 X 4 WOOD STUDS, 16" O.C.
- 7/16" OSB EXTERIOR SHEATHING
- TYVEK BUILDING WRAP TO EXTEND OVER FLASHING AT BASE
- 1" AIR SPACE
- MORTAR COLLECTION MESH @ BASE OF COLUMN
- 4" VENEER BRICK W/ BRICK TIES 16" O.C. EACH WAY, FLASH ACCORDINGLY W/ WEEP VENTS EACH SIDE AT BASE

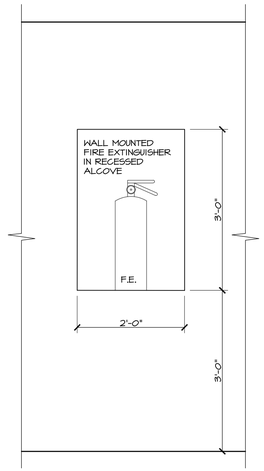
4 A4.1 DETAIL
1" = 1'-0"



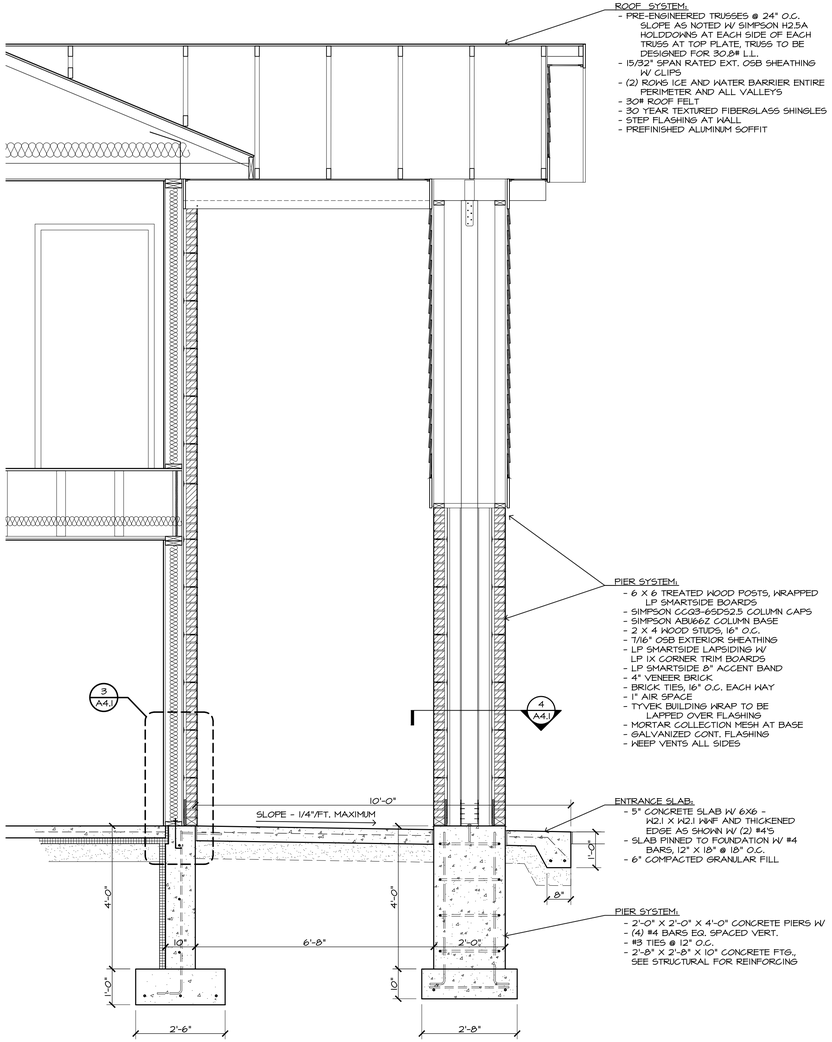
5 A4.1 HANDRAIL SECTION
3" = 1'-0"



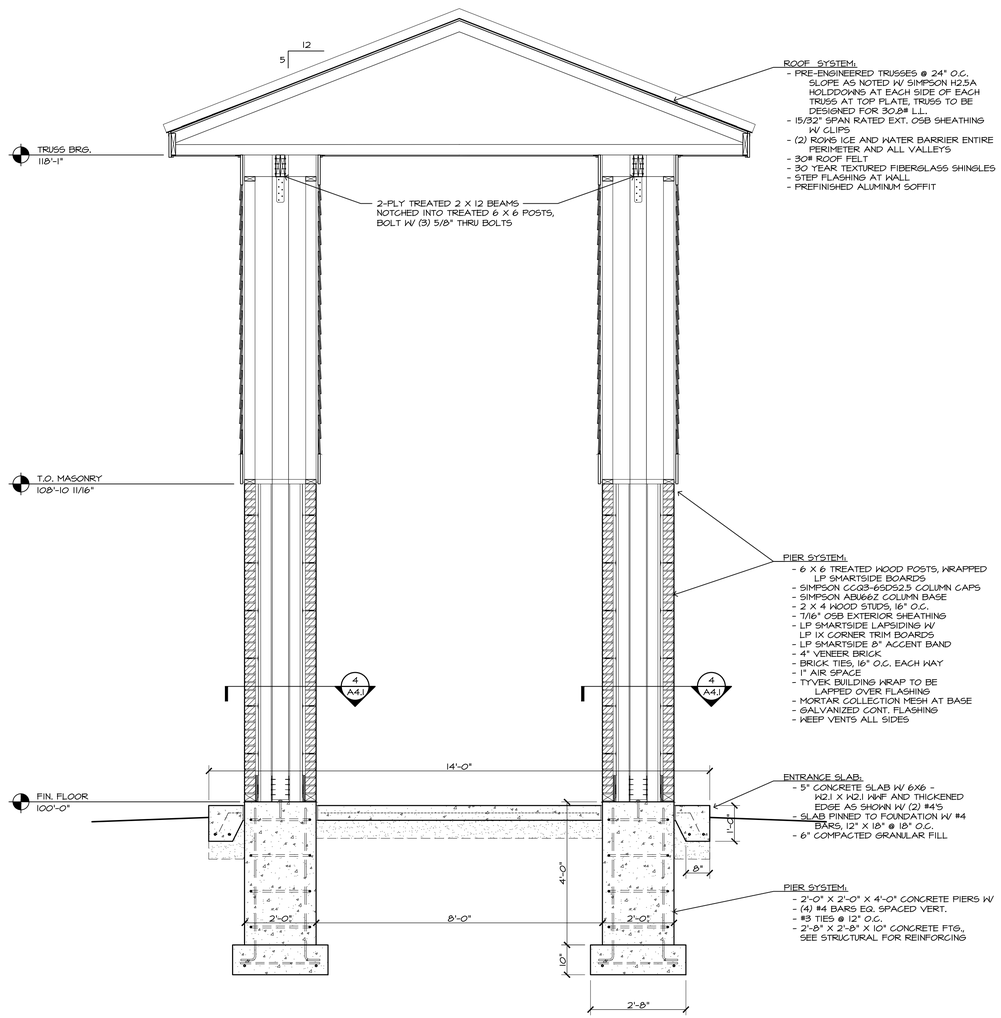
6 A4.1 FIRE EXTINGUISHER PLAN
3/4" = 1'-0"



7 A4.1 FIRE EXTINGUISHER ALCOVE ELEVATION
3/4" = 1'-0"



1 A4.1 ENTRANCE CANOPY SECTION
1/4" = 1'-0"



2 A4.1 ENTRANCE CANOPY SECTION
1/4" = 1'-0"

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LA CROSSE, WI 54601

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CANOPY SECTIONS
CONSTRUCTION DETAILS

DATE : 03.10.26

DRAWN BY : KKT

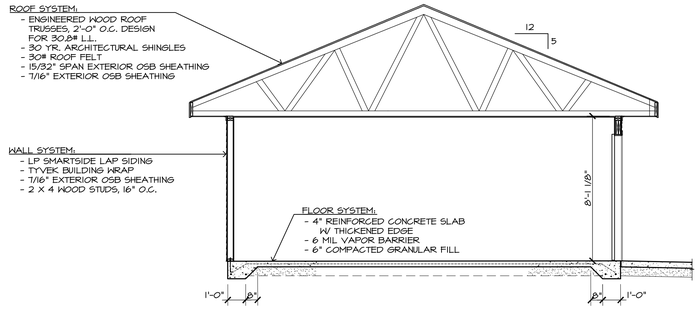
CHECKED BY : NA/SN

REVISIONS :

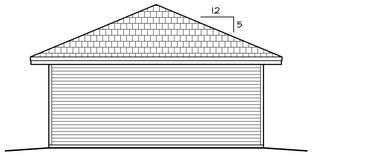
Nicolai Apartments

3629 Calvert Road
La Crosse, WI 54601

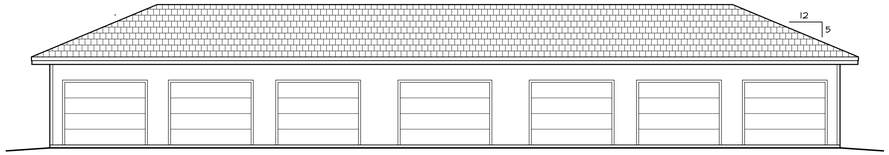
A4.1



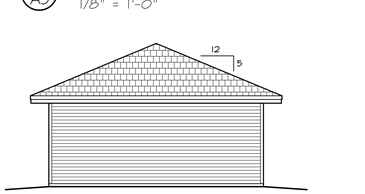
7 A5 BUILDING SECTION
1/4" = 1'-0"



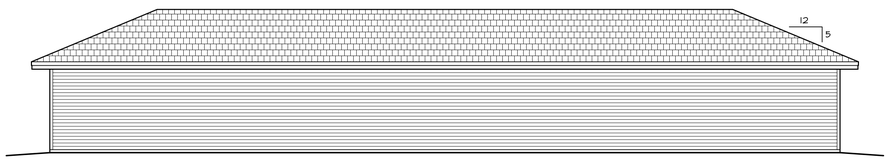
5 A5 SOUTH ELEVATION
1/8" = 1'-0"



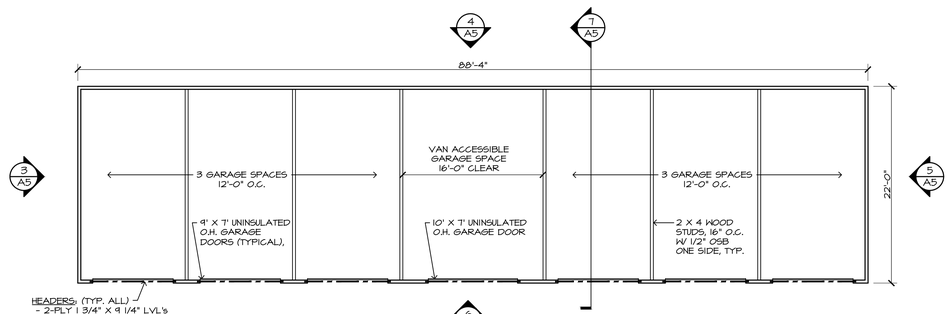
6 A5 WEST ELEVATION
1/8" = 1'-0"



3 A5 NORTH ELEVATION
1/8" = 1'-0"

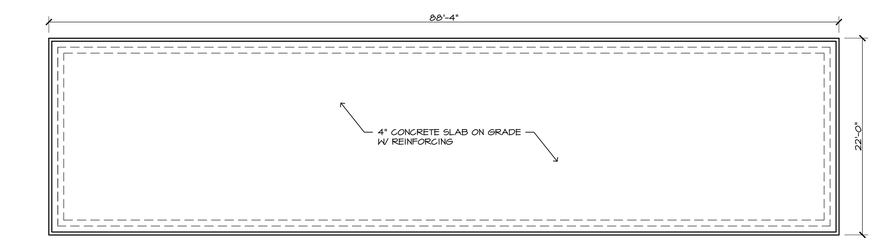


4 A5 EAST ELEVATION
1/8" = 1'-0"



2 A5 FLOOR PLAN
1/8" = 1'-0"

NORTH



1 A5 FOUNDATION PLAN
1/8" = 1'-0"

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GARAGES:
- FOOTING & FOUNDATION PLANS
- FLOOR PLANS
- EXTERIOR ELEVATIONS
- BUILDING SECTION

DATE : 03.10.26

DRAWN BY : KKT

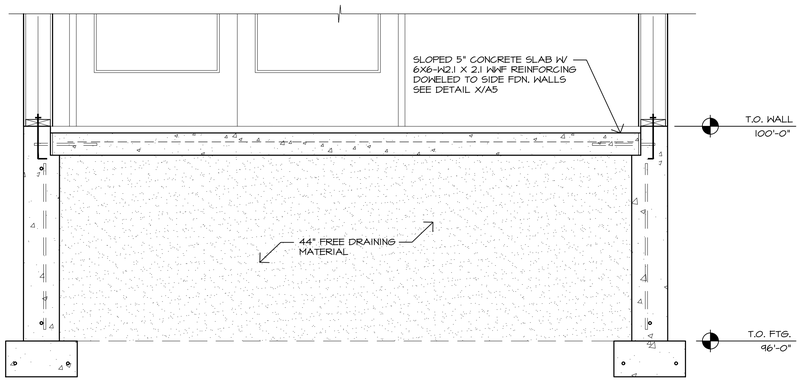
CHECKED BY : NA/SN

REVISIONS :

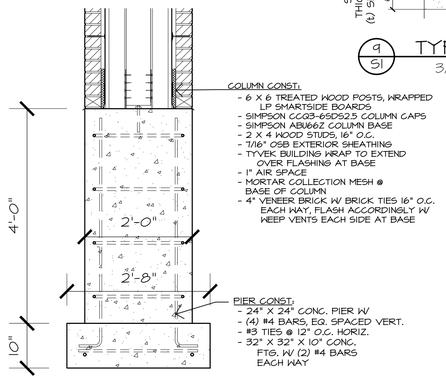
Nicolai Apartments

3629 Calvert Road
La Crosse, WI 54601

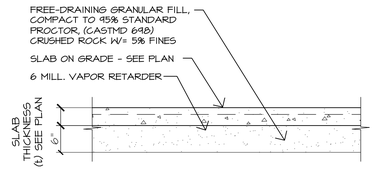
A5



6/S1 STOOP SECTION
3/4" = 1'-0"



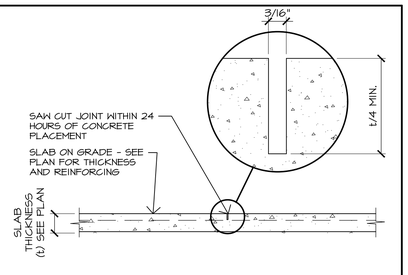
7/S1 PIER CONSTRUCTION
3/4" = 1'-0"



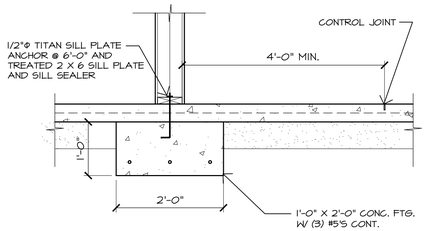
9/S1 TYP. SLAB ON GRADE
3/4" = 1'-0"



10/S1 TYP. CONST. JOINT DTL.
3/4" = 1'-0"



11/S1 TYP. SLAB CONTROL JT.
3/4" = 1'-0"



8/S1 BEARING WALL DETAIL
3/4" = 1'-0"

FOUNDATION KEYED NOTES:

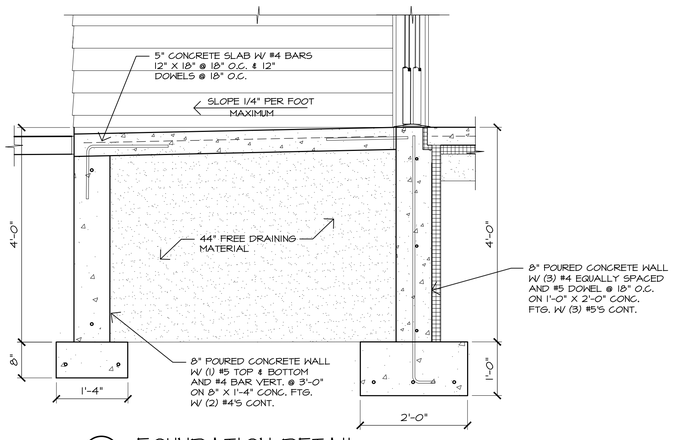
S1 4" THICK CONC SLAB ON GRADE WITH 6X6-W2.1 X W2.1 WWF, 10 MIL POLY VAPOR BARRIER UNDER SLAB, LAP AND TAPE ALL JOINTS, 6" MIN COMPACTED GRANULAR BASE.

S2 TYPICAL SLAB CONTROL JOINT MAX SPACING 15'-0", REFER TO 11/S1.

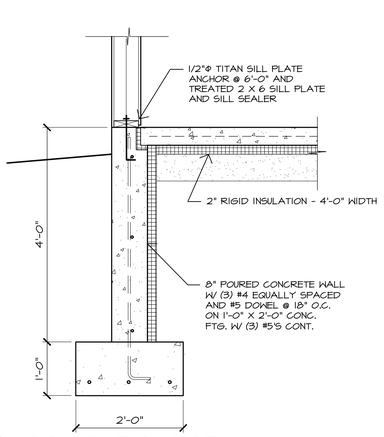
S3 TYPICAL SLAB CONSTRUCTION JOINT (WHERE APPLICABLE) REFER TO 10/S1.

CONSTRUCTION GENERAL NOTES

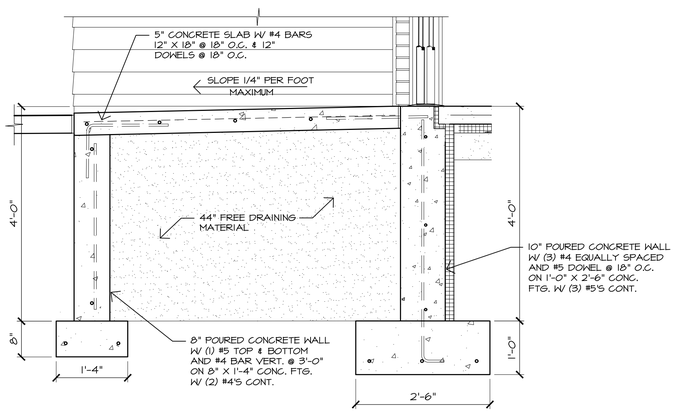
1. FIELD VERIFY ALL EXISTING CONDITIONS. ANY EXISTING CONDITION THAT DOES NOT AGREE WITH THESE PLANS MUST BE BROUGHT TO THE ARCHITECTS ATTENTION FOR REVIEW. GENERAL CONTRACTOR SHALL
2. OBSERVE ALL STATE AND LOCAL CODES
3. ALL REBAR USED SHALL BE CLEAN AND FREE OF OIL, DIRT OR OTHER CONTAMINANTS THAT WILL PREVENT COMPLETE BONDING TO THE CONCRETE.



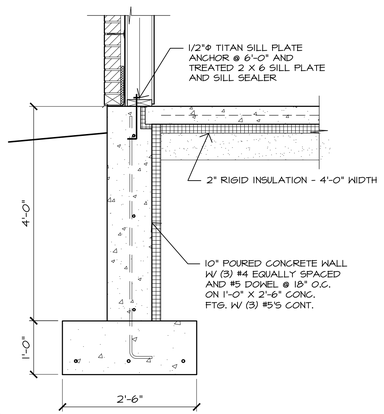
4/S1 FOUNDATION DETAIL
3/4" = 1'-0"



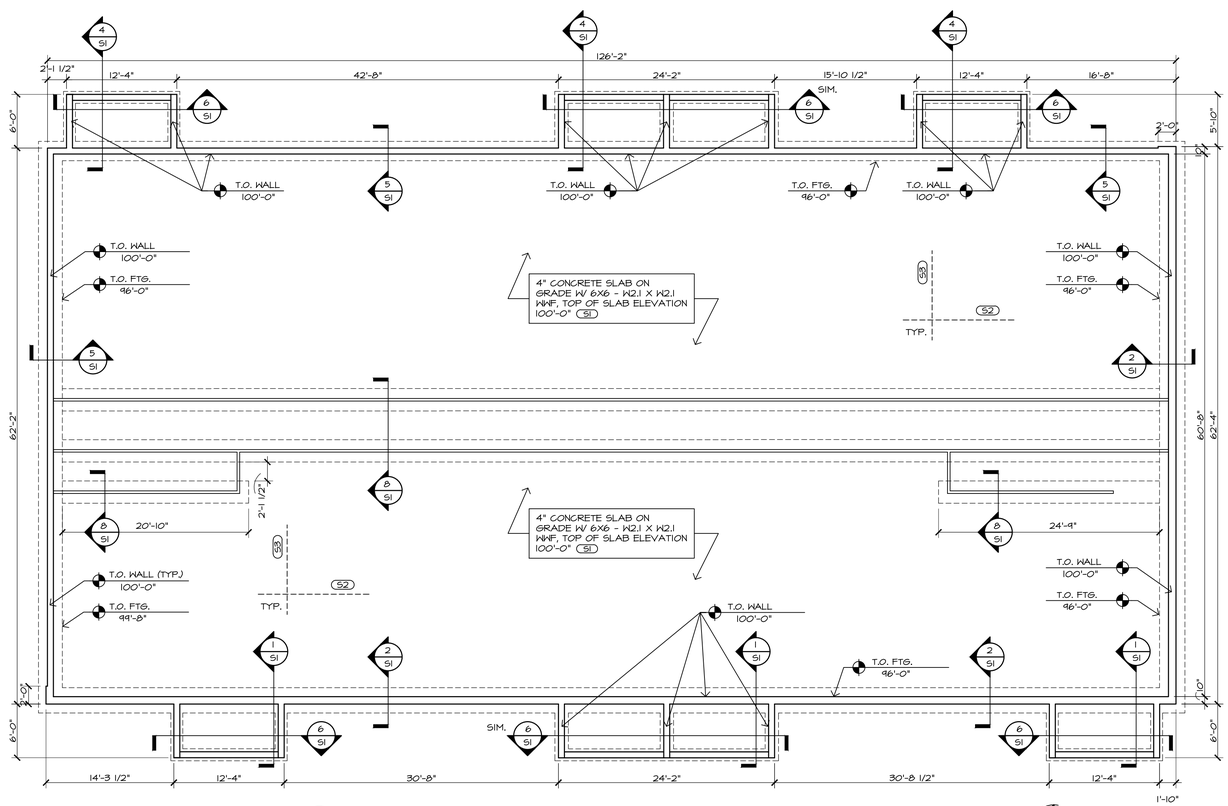
5/S1 FOUNDATION DETAIL
3/4" = 1'-0"



1/S1 FOUNDATION DETAIL
3/4" = 1'-0"



2/S1 FOUNDATION DETAIL
3/4" = 1'-0"



3/S1 FOUNDATION PLAN
1/8" = 1'-0"

5th Avenue Design
504 5TH AVENUE S.
LA CROSSE, WI 54601
TEL 608·780·5075

FOOTING & FOUNDATION PLAN
CONSTRUCTION DETAILS

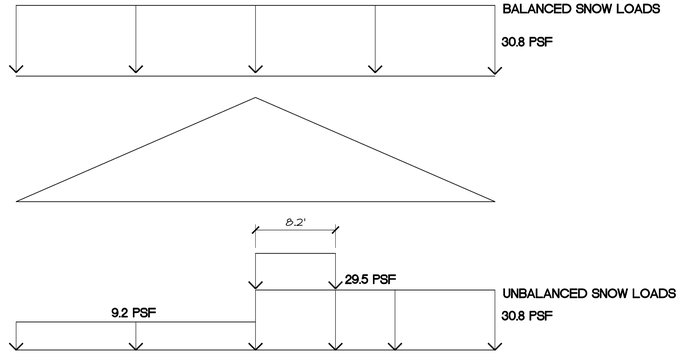
DATE : 03.10.26
DRAWN BY : KKT
CHECKED BY : AC
REVISIONS :

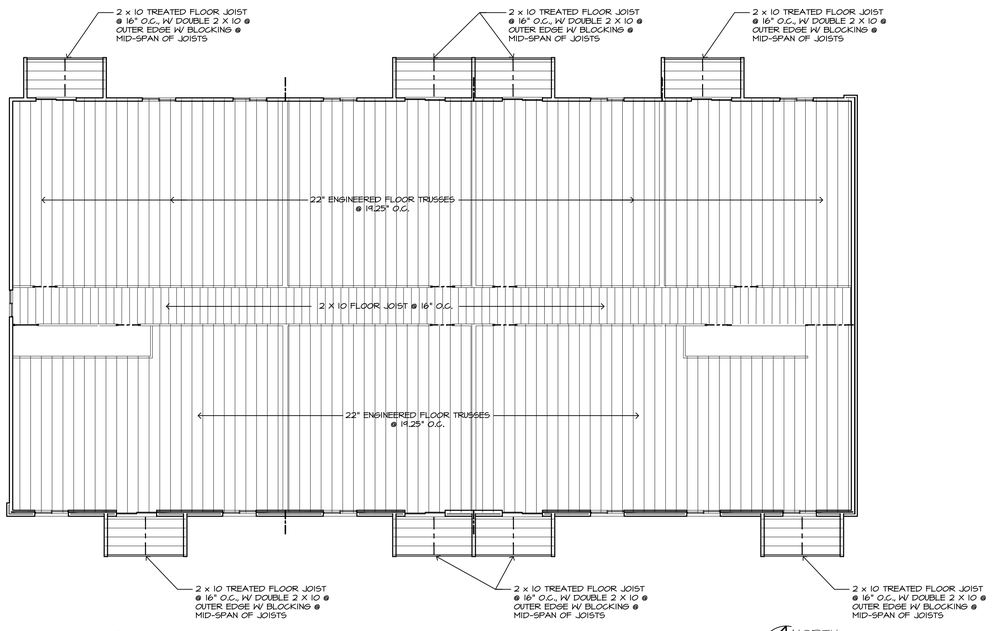
Nicolai Apartments
3629 Calvert Road
La Crosse, WI 54601

S1

PER IBC 2015 ASCE 7-10 LOADS:

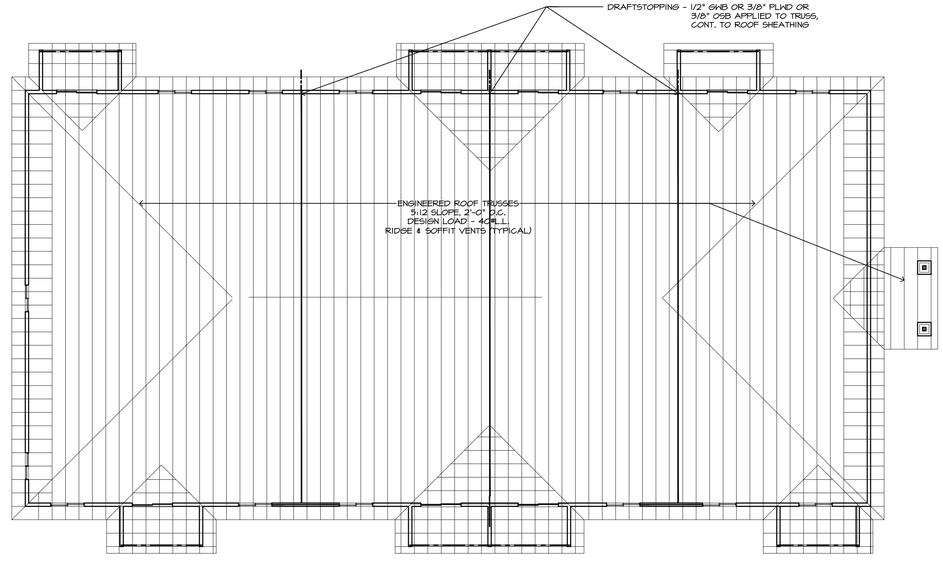
- > Pg = 40 PSF
- > MAX. WIND V = 115 MPH
- > FLOOR LIVE LOAD = 40 PSF
- > FLOOR DEAD LOAD = 20 PSF
- > RESIDENTIAL CORRIDOR/STAIRS = 100 PSF
- > ROOF TRUSS TOP CHORD DEAD LOAD = 10 PSF
- > ROOF TRUSS BOTTOM CHORD DEAD LOAD = 10 PSF
- > ASSUMED SOIL BEARING PRESSURE = 2000 PSF
- > PARTITION LIVE LOAD = 15 PSF





1/S2 FIRST FLOOR FRAMING PLAN
3/32" = 1'-0"

NORTH



2/S2 ROOF FRAMING PLAN
3/32" = 1'-0"

5th Avenue Design

504 5TH AVENUE S.
LA CROSSE, WI 54601

TEL 608-780-5075

FLOOR FRAMING PLAN
ROOF FRAMING PLAN
SNOW LOADS

DATE : 03.10.26

DRAWN BY : KKT

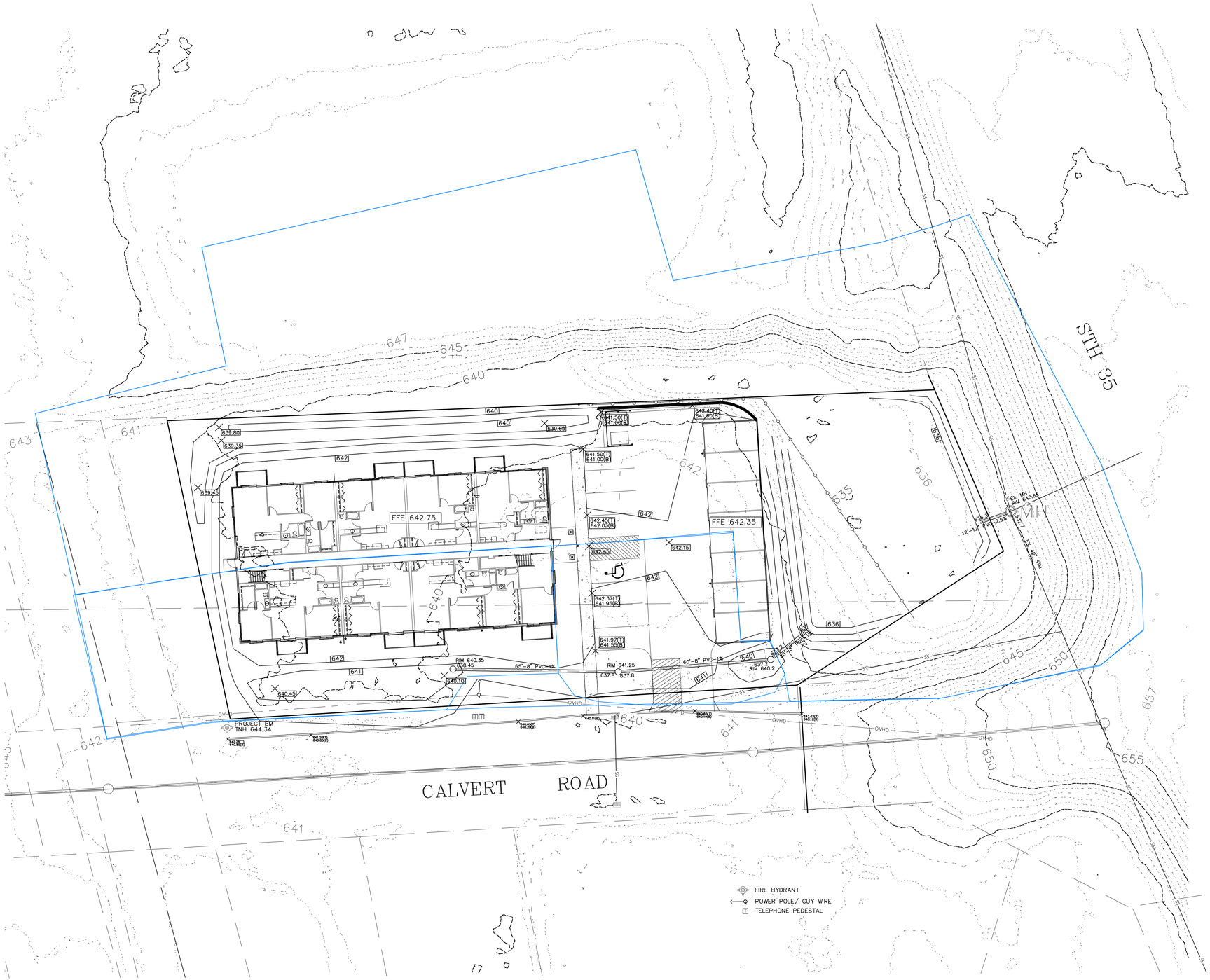
CHECKED BY : AC

REVISIONS :

Nicolai Apartments

3629 Calvert Road
La Crosse, WI 54601

S2



FIRE HYDRANT
POWER POLE/ GUY WIRE
TELEPHONE PEDESTAL

LEGEND
- FOUND 3/4" I.D.I.P. (UNLESS NOTED)
- FOUND P.K. NAIL
- FOUND CHISELED "X"
- SET 3/4" X 18" IRON BAR
- TNH TOP NUT HYDRANT
- UTILITY POLE W/GUY WIRE
- HYDRANT
- EXISTING UNDERGROUND ELECTRIC
- SPOT ELEVATION
- SILT FENCE
- TRACKING CONTROL PAD
- BIOFILTRATION AREA, SEE DETAIL

GRADING NOTES

- The location of existing utilities, both underground and overhead are approximate only and have not been independently verified by the owner or its representatives. the contractor shall be responsible for determining the exact location of all existing utilities, whether shown on these plans or not, before commencing work, and shall be fully responsible for any and all damages which might be caused by the contractor's failure to exactly locate and preserve any and all utilities. CALL DIGGERS HOTLINE (800)-242-8511.
- The underground locations of the public utilities were marked by representatives of those companies. The locations of the customer owned underground utilities were NOT marked.
- There may be more underground utility installations within the project area that are not shown.
- It shall be the contractors responsibility to arrange for any necessary inspections by local government that may be required.
- Contours shown are for finished surfaces, any adjustment to subgrade is the contractor's responsibility.
- All disturbed areas that unpaved are to be landscaped or sodded as indicated on the landscape plan.
- Pavement section consists of 3" Bituminous Pavement and 8" crushed aggregate base course.
- Spot elevations shall take precedence over contours and slopes shown. However, the contractor shall notify the Engineer if spot elevations do not appear to agree with the contours and slopes labeled. Spot elevations and specific profile information shall be used for establishing the elevation of curbs, driveways, and other utilities.
- All finished grading shall provide for a smooth transition to ungraded areas.
- All pvc storm piping shall be minimum SDR 35.

BUILDING AND WASTE MATERIAL SHALL BE DISPOSED OF IN A LAWFUL MANNER.

UTILITY NOTES

- The location of existing utilities, both underground and overhead are approximate only and have not been independently verified by the owner or its representatives. the contractor shall be responsible for determining the exact location of all existing utilities, whether shown on these plans or not, before commencing work, and shall be fully responsible for any and all damages which might be caused by the contractor's failure to exactly locate and preserve any and all utilities. CALL DIGGERS HOTLINE (800)-242-8511.
- Field verify all locations and invert elevations prior to commencing work.
- All Sanitary Sewer piping shall be PVC meeting ASTM D-3034 SDR 26.
- Water Lines shall be Ductile Iron (3" or Greater), or shall be AWWA C900. Tracer wire for C900 shall be a 1/8" stainless steel with poly coating, or approved equal. The tracer wire shall be securely grounded to the compression fitting at both the watermain and curb stop.
- It shall be the contractors responsibility to arrange for any necessary inspections by local government that may be required.
- Contractor shall comply completely with the latest standards of OSHA Directives or any other agency having jurisdiction for excavation and trenching procedures. Contractor is responsible for complying with performance criteria as required by OSHA.
- Maintain 1' separation for watermain crossing over sanitary lateral.
- See Plumbing Plans for storm sewer drain connection locations.
- Storm connections shall be watertight with rubber gasket and steel band.
- All storm sewer piping shall have joints wrapped with EZ-Wrap by Press-Seal Gasket Corporation, or equal.

LA CROSSE COORDINATE SYSTEM

1" = 20'
0 10 20

LA CROSSE
ENGINEERING & SURVEYING CO., INC.
1206 S. 3rd STREET, LA CROSSE, WI 54601
Office: (608)782-1977 Fax: (608)782-5402
www.lacrosseengineering.com

NICOLAI APARTMENTS
CALVERT ROAD, LA CROSSE, WI
GRADING & EROSION CONTROL PLAN

DATE: 3/06/26
FILE: NICOLAI_CALVERT
DRAWN BY: FJH

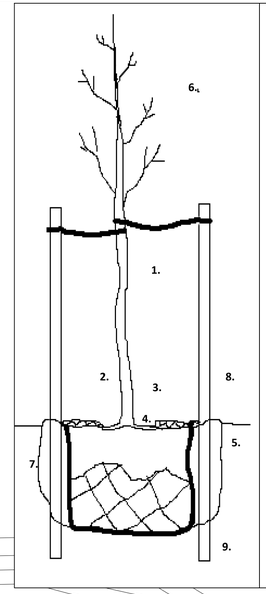
C1

NICOLAI APT, 3629 Calvert Road, LANDSCAPE PLANT SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	QTY	SIZE	CONDITION	NOTES
	TREES					
ACJEF	Acer saccharun 'Jefcan'	Unity Maple	1	2" cal	B & B/Cont	Spd 30' x Ht 40'
BN	Betula nigra	River Birch	1	2" cal	B & B/Cont	Spd 30' x Ht 40'
GT	Gleditsia triacanthos var. inermis 'Harve'	Northern Acclaim Honeylocust	1	2" cal	B & B/Cont	Spd 30' x Ht 40'
QR	Quercus robur x alba 'Scarlet Letter'	Scarlet Letter Oak	14	2" cal	B & B/Cont	Spd 15' x Ht 40'
TA	Tilia americana 'Bailyard'	Frontyard Linden	1	2" cal	B & B/Cont	Spd 30' x Ht 40'
UA	Ulmus 'New Horizon'	New Horizon Elm	1	2" cal	B & B/Cont	Spd 30' x Ht 40'
	SHRUBS					
BT	Berberis thunbergii 'BailErin'	Limoncello Barberry	5	5 gal	container	Spd 4' x Ht 4'
CS	Cornus sericea (stolonifera) 'Kelseyi'	Kelsey Dogwood	7	5 gal	container	Spd 3' x Ht 3'
CSF	Cornus sericea 'Farrow'	Arctic Fire Red Twig Dogwood	10	5 gal	container	Spd 4' x Ht 4'
HP	Hydrangea paniculata 'SMHPFL'	Fire Light Hydrangea	9	5 gal	container	Spd 5' x Ht 5'
HPS	Hydrangea paniculata 'SMHPLQF'	Little Quick Fire® Hydrangea	10	5 gal	container	Spd 4' x Ht 4'
SBG	Spiraea x bumalda 'Goldflame'	Goldflame Spirea	6	5 gal	container	Spd 4' x Ht 3'
SJ	Spiraea japonica 'Neon Flash'	Neon Flash Spirea	11	5 gal	container	Spd 4' x Ht 3'
	PERENNIALS					
HRS	Hemerocallis 'Ruby Stella'	Ruby Stella Daylily	30	1 gal	container	Spd 18" x Ht 18"
SSC	Schizachyrium scoparium 'Chameleon	Chameleon Little Bluestem	45	1 gal	container	Spd 18" x Ht 24"
SSB	Schizachyrium scoparium 'Blaze'	Blaze Little Bluestem	70	1 gal	container	Spd 18" x Ht 24"

All shrub beds to receive 2' of shredded bark, no plastic layer

Note: review planting directive for all trees



HOW TO PROPERLY PLANT A BALLED AND BURLAPPED TREE

PETE BEMIS, LANDSCAPE DESIGNER

1. INSPECT THE TREE FOR DAMAGED BARK ON THE TRUNK OR DAMAGED BRANCHES, THE BALL SHOULD BE VERY HARD AND FIRM. REJECT A TREE WHEN THE BALL IS BROKEN INTO PIECES.

2. PLANTING DEPTH IS CRITICAL, THE FLARE AT THE BASE OF THE TRUNK SHOULD BE EXPOSED ABOVE THE PLANTING DEPTH. LOOK AT OTHER TREES TO SEE HOW THE FLARE IS ABOVE THE SOIL.

3. IF THERE IS SOIL ABOVE THE FLARE OF THE TRUNK REMOVE SOIL UNTIL THE FLARE IS EXPOSED, ALL SOIL ABOVE THE FLARE MUST COME OFF THE BALL PRIOR TO DETERMINING PLANTING DEPTH. DO THIS BEFORE PUTTING THE TREE IN THE HOLE. THE BASKET SHOULD HAVE ALL ROPE/TWINE REMOVED FROM THE TOP TO OPEN THE BASKE AND DETERMINE THE PROPER PLANTING DEPTH BY EXPOSING THE TRUNK FLARE.

4. THE HOLE FROM THE TREE SHOULD BE MEASURED SO THAT WHEN THE TREE SITS IN THE HOLE THE FLARE IS AT OR SLIGHTLY ABOVE THE GRADE. THE TREE SHOULD SIT ON VERY FIRM SOIL, PACK PRIOR TO PLACING THE TREE IF NECESSARY. THE TREE SHOULD NOT SETTLE LOWER DUE TO SOFT SOIL BELOW THE BALL.

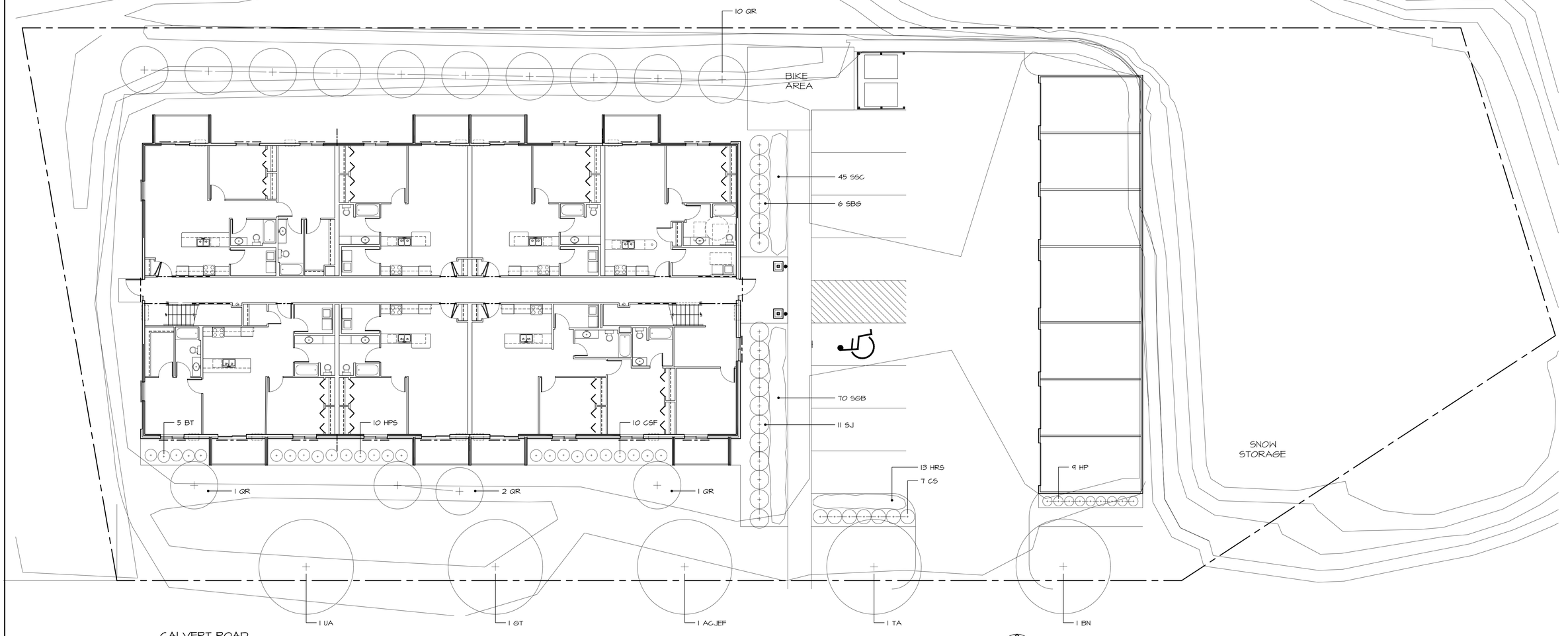
5. THE HOLE SHOULD BE TOW TO THREE TIMES THE WIDTH OF THE BALL. THE SOIL THAT IS REMOVED SHOULD BE RETURNED TO THE HOLE, ESPECIALLY THE TOPSOIL. CHOP THE GRASS SOD INTO PIECES TO PUT BACK IN THE HOLE, THIS IS THE BEST SOIL. IF THE SOIL IS EXTREMELY SANDY OR EXTREMELY CLAY, ADD APPROXIMATELY 25% COMPOST. DO NOT ENTIRELY REPLACE THE SOIL IN THE HOLE OR THE TREE WILL NOT WANT TO GROW ROOTS BEYOND THE WIDTH OF THE HOLE.

6. PRUNING SHOULD BE AT A MINIMUM FOR THE FIRST THO YEARS. REMOVE ANY LIMBS THAT ARE RUBBING OR DAMAGED. SHADE TREES SHOULD HAVE ONE DOMINATE LEADER.

7. PLACE THE TREE IN THE PLANTING HOLE TO THE CORRECT DEPTH. REMOVE ALL BURLAP AND WIRE BASKET TO THE EXTENT THAT THE BALL DOWN NOT COME APART, THE BALL MUST REMAIN INTACT. REMOVE THE BURLAP AND ROPE FROM TOP DOWN AND CUT THE WIRE OFF AS MUCH AS POSSIBLE, WITHOUT HAVING THE BALL FALL APART. THE WIRE DOES NOT ROT AWAY QUICKLY ENOUGH, IT WILL DAMAGE THE TREE ROOTS. DO NOT LEAVE ANY BURLAP EXPOSED AS IT WILL DRY OUT THE BALL.

8. CREATE A 36" TO 48" DIAMETER BERM WITH THE EXTRA SOIL, ABOUT 4" HIGH. FILL THE BERM WITH SHREDDED MULCH TO A DEPTH OF 3". DO NOT PLACE SHREDDED MULCH ON THE TREE TRUNK. BARK HIGH ON THE TREE TRUNK WILL MAKE THE TREE BARK SOFT AND BE AN ENTRY POINT FOR INSECTS AND DISEASES. TREE MULCH VOLCANOES' DAMAGE TREES.

9. STAKES SHOULD BE PLACED OUTSIDE THE TREE BALL. ATTACH THE TREE TO THE STAKES, BUT NOT VERY TIGHTLY. THE TREE SHOULD BE ABLE TO MOVE WITH THE WIND.



1/C1 LANDSCAPING PLAN

1" = 10'-0"

5th Avenue Design

504 5TH AVENUE S.
LA CROSSE, WI 54601

TEL 608·780·5075

LANDSCAPE PLAN

DATE : 03.11.26

DRAWN BY : KKT

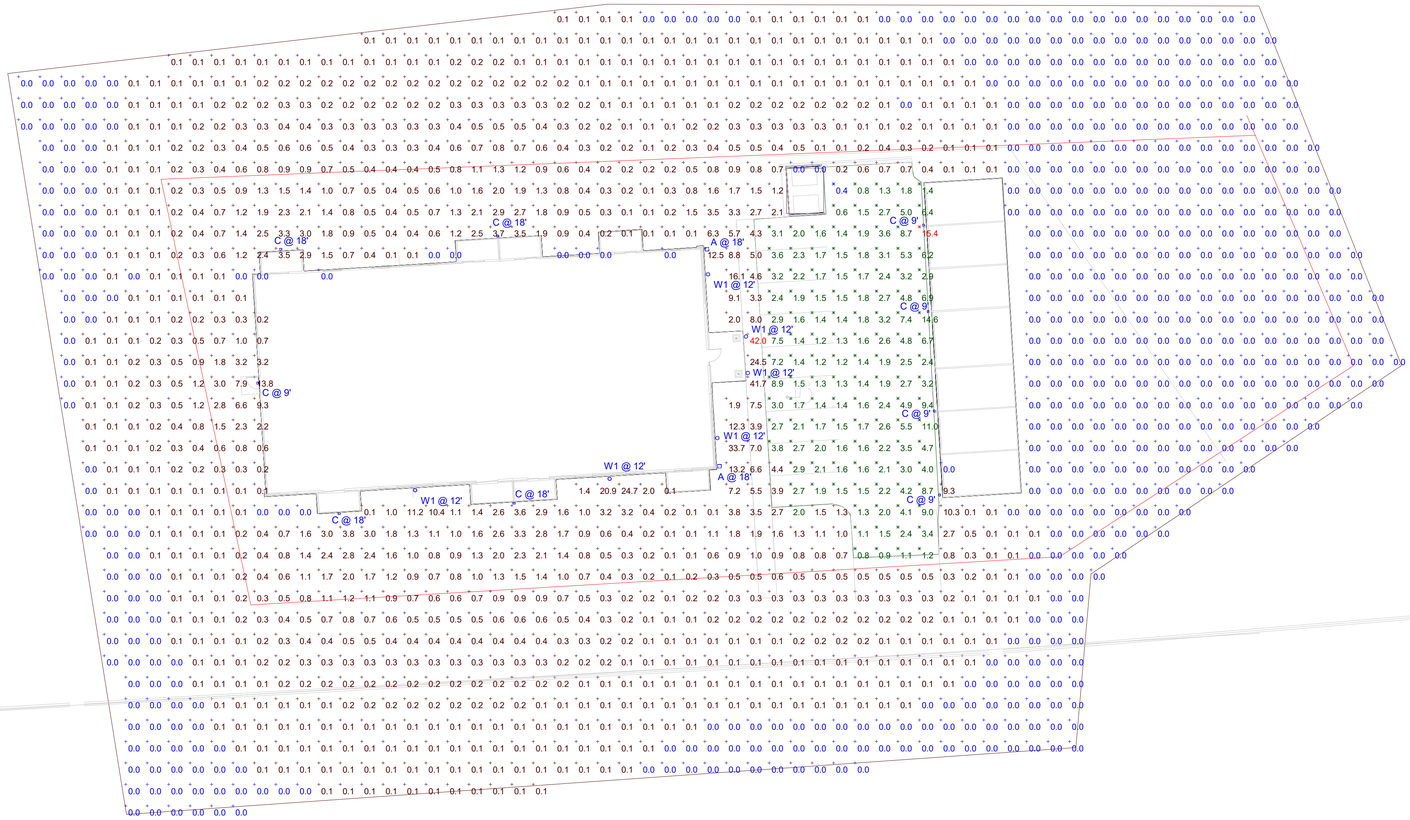
CHECKED BY : AN/SN

REVISIONS :

Nicolai Apartments

3629 Calvert Road
La Crosse, WI 54601

C1



SITE PLAN - PHOTOMETRICS

NOT TO SCALE

Schedule

Symbol	Label	QTY	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage
◯	W1	6	WAC LTG - DS-WE06-F30S-WT	SURFACE MOUNTED UP/DOWN LIGHT	LED	1	3543	0.9	34.6097
□	A	2	RAB - WP1FA29	EXTERIOR WALLPAK	LED	1	8692	0.9	60.54
□	C	9	RAB - WP2FA60	EXTERIOR WALLPAK	LED	1	4009	0.9	29.6321

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Overall Site	+	0.7 fc	42.0 fc	0.0 fc	N/A	N/A
Parking	✳	3.0 fc	15.4 fc	0.4 fc	38.5:1	7.5:1

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TUBE ARCHITECTURAL DS-WE06

6" Extended Single LED Wall Mount

WAC LIGHTING





Fixture Type: W1

Catalog Number: DS-WE06-F30S-WT

Project: NICOLAI

Location: LA CROSSE, WI

PRODUCT DESCRIPTION

The latest energy efficient LED technology in an appealing cylindrical profile delivers accent and wall wash lighting. Comes in various light distribution and beam angle options.

FEATURES

- Single light extended body high performance exterior rated LED wall mount
- Fixture can install upside down to alter light distribution
- Solid aluminum construction
- 5 year warranty

SPECIFICATIONS

Input: Universal voltage 120V - 277VAC, 50/60Hz
Dimming: Electronic low voltage (ELV) : 100% - 5%
0-10V: 100% - 1%
Light Source: High output 3 Step Mac Adam Ellipse COB
Rated life ≥60,000 hours at L70
Finish: Electrostatically powder coated white, black, bronze and graphite
Standards: IP65 rated, ETL & cETL wet location listed,
Energy Star® 2.2 Title 24 JA8-2016 Compliant
Operating Temp: -13°F to 122°F (-25°C to 50°C); EM: -4°F to 122°F (-20°C to 50°C)

ORDERING NUMBER

Diameter	Watt	Beam	Beam Angle	Color Temp	CRI	Reference Output[2] Lumen	CBCP	Efficacy (lm/w)	Light Distribution	Finish
DS-WE06	35W	S Straight up or down	16°	927S 2700K	90	2820	18842	81		BK Black
DS-WE06EM[1]	35W			927S 2700K	90	2825	5451	81		BK Black
				275 2700K	85	3385	22608	97		WT White
				930S 3000K	90	2925	19543	84		WT White
DS-WE0622	22W			30S 3000K	85	3535	23632	101		BZ Bronze
				935 3500K	85	3630	24255	104		BZ Bronze
DS-WE0622EM[1]	22W			40S 4000K	85	3663	24490	105		GH Graphite
		N Straight up or down	28°	927S 2700K	90	2800	7992	80		GH Graphite
				275 2700K	85	3360	9589	96		
				930S 3000K	90	2900	8290	83		
				30S 3000K	85	3510	10024	100		
				35S 3500K	85	3600	10288	103		
				40S 4000K	85	3635	10388	104		
		F Straight up or down	38°	927S 2700K	90	2825	5451	81		
				275 2700K	85	3390	6540	97		
				930S 3000K	90	2930	5654	84		
				30S 3000K	85	3545	6836	101		
				35S 3500K	85	3640	7017	104		
				40S 4000K	85	3675	7085	105		
		F Away from the wall	N/A	927A 2700K	90	2860		82		
				27A 2700K	85	3435		98		
				930A 3000K	90	2970	N/A	85		
				30A 3000K	85	3590		103		
				35A 3500K	85	3685		105		
				40A 4000K	85	3720		106		
		F Towards the wall	N/A	927B 2700K	90	2860		82		
				27B 2700K	85	3435		98		
				930B 3000K	90	2970	N/A	85		
				30B 3000K	85	3590		103		
				35B 3500K	85	3685		105		
				40B 4000K	85	3720		106		

DS-WE06-_____-_____

[1]EM fixtures provided with integral emergency battery back up. Provides at least 90 minutes of 5W illumination during emergency operation. Emergency test button and indicator light located in fixture mounting arm.

Example: **DS-WE06-F930A-WT**

[2]Reference output shows 35W output. Multiply by **0.7** to determine output for 22W combinations.

waclighting.com
Phone (800) 526.2588
Fax (800) 526.2585

Headquarters/Eastern Distribution Center
44 Harbor Park Drive
Port Washington, NY 11050

Central Distribution Center
1600 Distribution Ct
Lithia Springs, GA 30122

Western Distribution Center
1750 Archibald Avenue
Ontario, CA 91760

WAC Lighting retains the right to modify the design of our products at any time as part of the company's continuous improvement program. SEPT 2019

WP1FA29

RAB



Color: Bronze

Weight: 6.6 lbs

Project: Nicolai

Type: C

Prepared By: MKR

Date: 3/13/2026

Driver Info

Type	Constant Current
120V	0.24A
208V	0.14A
240V	0.13A
277V	0.11A
Input Watts	29.7/29/29.7W

LED Info

Watts	29W
Color Temp	3000/4000/5000K
Color Accuracy	83/84/82 CRI
L70 Lifespan	100,000 Hours
Lumens	4,009/4,216/4,283 lm
Efficacy	135.3/146.1/145.6 lm/W

Technical Specifications

Field Adjustability
Field Adjustable:
Color temperature selectable by 3000K, 4000K and 5000K

Compliance
UL Listed:
Suitable for wet locations

IESNA LM-79 & LM-80 Testing:
RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

IP Rating:
Ingress protection rating of IP65 for dust and water

Performance
Lifespan:
100,000-Hour LED lifespan based on IESIm-80 results and TM-21 calculations

Wattage Equivalency:
Equivalent to 125W Metal Halide

LED Characteristics
LEDs:
Long-life, high-efficiency, surface-mount LEDs

Electrical
Driver:
Constant Current, Class 1, 120-277V, 50/60 Hz, 120V: 0.24A, 208V: 0.14A, 240V: 0.13A, 277V: 0.11A

Dimming Driver:
Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims down to 10%.

THD:
12.2% at 120V, 13% at 277V

Power Factor:
98.9% at 120V, 93% at 277V

Photocell:
120-277V selectable photocell that can be turned on and off.

Construction
Cold Weather Starting:
The minimum starting temperature is -40°F (-40°C)

Maximum Ambient Temperature:
Suitable for use in up to 122°F (50°C)

Housing:
Die-cast aluminum

Lens:
Tempered glass

Finish:
Formulated for high durability and long-lasting color

Green Technology:
Mercury and UV free. RoHS-compliant components.

Installation
Mounting:
Wall mount

Other
5-Year Limited Warranty:
The RAB 5-year, limited warranty covers light output, driver performance and paint finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

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WP2FA60

RAB



Color: Bronze

Weight: 7.9 lbs

Project: Nicolai

Type: A

Prepared By: MKR

Date: 03/13/2026

Driver Info

Type	Constant Current
120V	0.51A
208V	0.30A
240V	0.27A
277V	0.23A
Input Watts	62.7/60.6/62.9W

LED Info

Watts	60W
Color Temp	3000/4000/5000K
Color Accuracy	81/84/82 CRI
L70 Lifespan	100,000 Hours
Lumens	8,762/9,140/8,990 lm
Efficacy	139.8/150.8/142.9 lm/W

Technical Specifications

Field Adjustability
Field Adjustable:
Color temperature selectable by 3000K, 4000K and 5000K

Compliance
UL Listed:
Suitable for wet locations

IESNA LM-79 & LM-80 Testing:
RAB LED luminaires and LED components have been tested by an independent laboratory in accordance with IESNA LM-79 and LM-80.

IP Rating:
Ingress protection rating of IP65 for dust and water

Performance
Lifespan:
100,000-Hour LED lifespan based on IESIm-80 results and TM-21 calculations

Wattage Equivalency:
Equivalent to 250W Metal Halide

LED Characteristics
LEDs:
Long-life, high-efficiency, surface-mount LEDs

Electrical
Driver:
Constant Current, Class 1, 120-277V, 50/60 Hz, 120V: 0.51A, 208V: 0.30A, 240V: 0.27A, 277V: 0.23A

Dimming Driver:
Driver includes dimming control wiring for 0-10V dimming systems. Requires separate 0-10V DC dimming circuit. Dims down to 10%.

THD:
9.87% at 120V, 14.06% at 277V

Power Factor:
99% at 120V, 89.7% at 277V

Photocell:
120-277V selectable photocell that can be turned on and off.

Construction
Cold Weather Starting:
The minimum starting temperature is -40°F (-40°C)

Maximum Ambient Temperature:
Suitable for use in up to 122°F (50°C)

Housing:
Die-cast aluminum

Lens:
Tempered glass

Finish:
Formulated for high durability and long-lasting color

Green Technology:
Mercury and UV free. RoHS-compliant components.

Installation
Mounting:
Wall mount

Other
5-Year Limited Warranty:
The RAB 5-year, limited warranty covers light output, driver performance and paint finish. RAB's warranty is subject to all terms and conditions found at rablighting.com/warranty.

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ELECTRICAL SITE PLAN - PHOTOMETRICS

EXCEL

Always a Better Plan

100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800
excelengineer.com

PROJECT INFORMATION

PROPOSED BUILDING FOR: NICOLAI APARTMENTS

3629 CALVERT RD. • LA CROSSE, WI 54601

PROFESSIONAL SEAL

SHEET DATES

ISSUED FOR APPROVAL

IFA MAR. 13, 2026

JOB NUMBER

260028400

SHEET NUMBER

E1.0

City of La Crosse, Wisconsin

City Hall
400 La Crosse Street
La Crosse, WI 54601

Text File

File Number: 22-0363

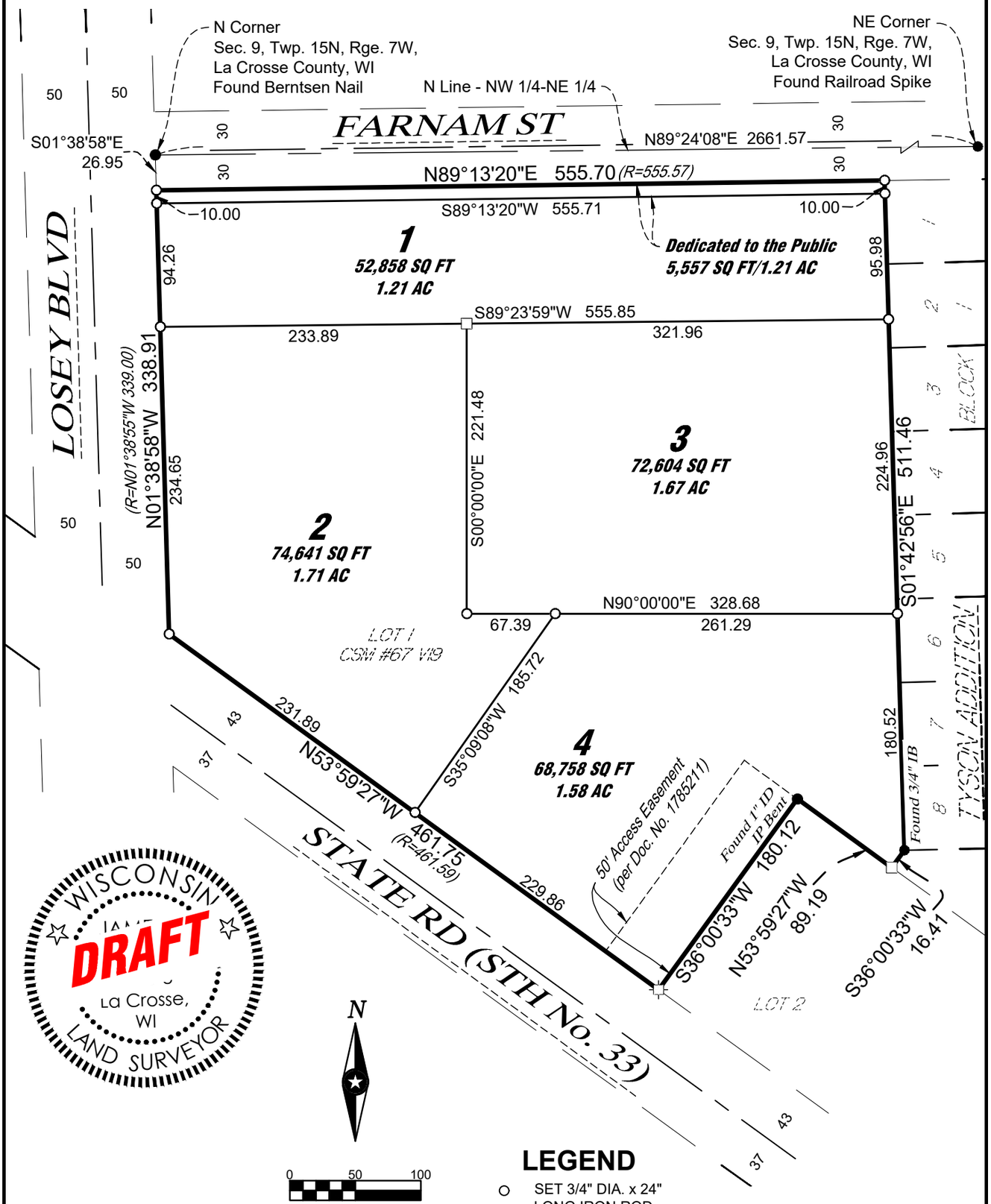
Agenda Date: 3/11/2022 **Version:** 1 **Status:** Agenda Ready

In Control: Commercial/Multi-Family Design Review Committee **File Type:** Review of Plans

Agenda Number: 4.

CERTIFIED SURVEY MAP

LOT 1, CERTIFIED SURVEY MAP NUMBER 67, VOLUME 19, DOCUMENT NUMBER 1761262, LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9 , TOWNSHIP 15 NORTH, RANGE 7 WEST, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN.



WISCONSIN
DRAFT
La Crosse, WI
LAND SURVEYOR

N

0 50 100
SCALE IN FEET

LEGEND

- ○ SET 3/4" DIA. x 24" LONG IRON ROD, 1.47 LBS/LINEAL FOOT
- □ SET MAGNAIL
- ⌖ SET SAWCUT "+"
- (R=_) RECORDED AS

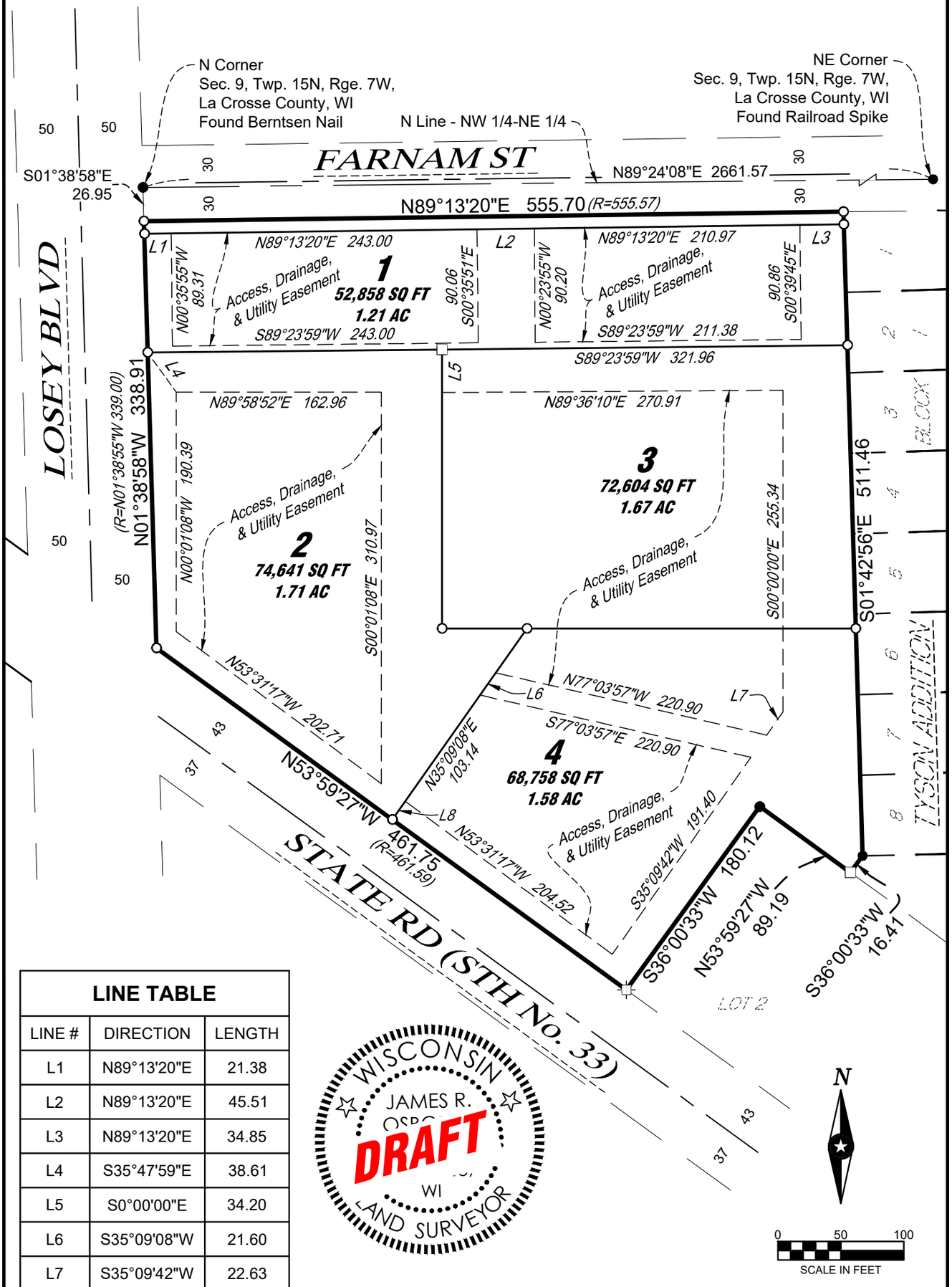
BEARING BASIS:

The orientation of this bearing system is based on the north line of the NE 1/4 of Section 9, Township 15, Range 7.
Said line bears North 89 degrees 24 minutes 08 seconds East.

SHEET 1 OF 3 SHEETS

CERTIFIED SURVEY MAP

LOT 1, CERTIFIED SURVEY MAP NUMBER 67, VOLUME 19, DOCUMENT NUMBER 1761262, LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9 , TOWNSHIP 15 NORTH, RANGE 7 WEST, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN.



LINE TABLE		
LINE #	DIRECTION	LENGTH
L1	N89°13'20"E	21.38
L2	N89°13'20"E	45.51
L3	N89°13'20"E	34.85
L4	S35°47'59"E	38.61
L5	S0°00'00"E	34.20
L6	S35°09'08"W	21.60
L7	S35°09'42"W	22.63
L8	S35°09'08"W	17.88

WISCONSIN
JAMES R.
DRAFT
WI
LAND SURVEYOR

N

0 50 100
SCALE IN FEET

SHEET 2 OF 3 SHEETS

CERTIFIED SURVEY MAP

LOT 1, CERTIFIED SURVEY MAP NUMBER 67, VOLUME 19, DOCUMENT NUMBER 1761262, LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9 , TOWNSHIP 15 NORTH, RANGE 7 WEST, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN.

LAND DESCRIPTION:

Lot 1 of Certified Survey Map Number 67, Volume 19, Document Number 1761262 located in the Northwest Quarter of the Northeast Quarter of Section 9, Township 15 North, Range 7 West, City of La Crosse, La Crosse County, Wisconsin.

CERTIFICATION:

I, James R. Osborne, Professional Land Surveyor, hereby certify that I have surveyed and mapped the lands described hereon, and that this map is a representation thereof, to the best of my knowledge and that I have complied with the City of La Crosse Chapter 113 and Chapter 236.34 of the Wisconsin State Statutes as per agreement with MKB Copper Rocks LLC who has requested such survey.

CITY OF LA CROSSE APPROVAL CERTIFICATE

Resolved that this Certified Survey Map is hereby approved by the City of La Crosse.

Dated this_____day of _____, 20__.

_____
City Clerk

OWNERS CERTIFICATE

As owner, I hereby certify that I caused the land described herein to be surveyed, divided, mapped and dedicated as represented on the Certified Survey Map. I also certify that this Certified Survey Map is required to be submitted to the following for approval, the City of La Crosse.

Dated this_____day of _____, 20__.

_____
Name Title

State of Wisconsin)
County of _____) SS
Personally came before me this _____ day of _____, 20__, the above named Owner to me known to be the same person who executed the foregoing instrument and acknowledged the same.

(Notary Seal)_____ Notary Public, _____ County, Wisconsin
My commission expires:_____

NOTE: Field work was completed on March 11, 2026.



LAND SURVEYOR:

James R Osborne PLS 3068
ISG
201 Main St. Ste. 1022
La Crosse, WI 54601

OWNER:

MKB Copper Rocks, LLC

SHEET 3 OF 3 SHEETS

SITE SUMMARY

PROJECT ADDRESS/LOCATION:	2415 STATE ROAD LA CROSSE, WISCONSIN 54601	
ZONING:	PD - PLANNED DEVELOPMENT	
SITE/LOT AREA:	268,861 SF	(6.2 AC)
EXISTING IMPERVIOUS:	268,861 SF	(6.2 AC)
PROPOSED IMPERVIOUS:	182,855 SF	(4.2 AC)
DISTURBED AREA:	268,861 SF	(6.2 AC)

REQUIRED SETBACKS

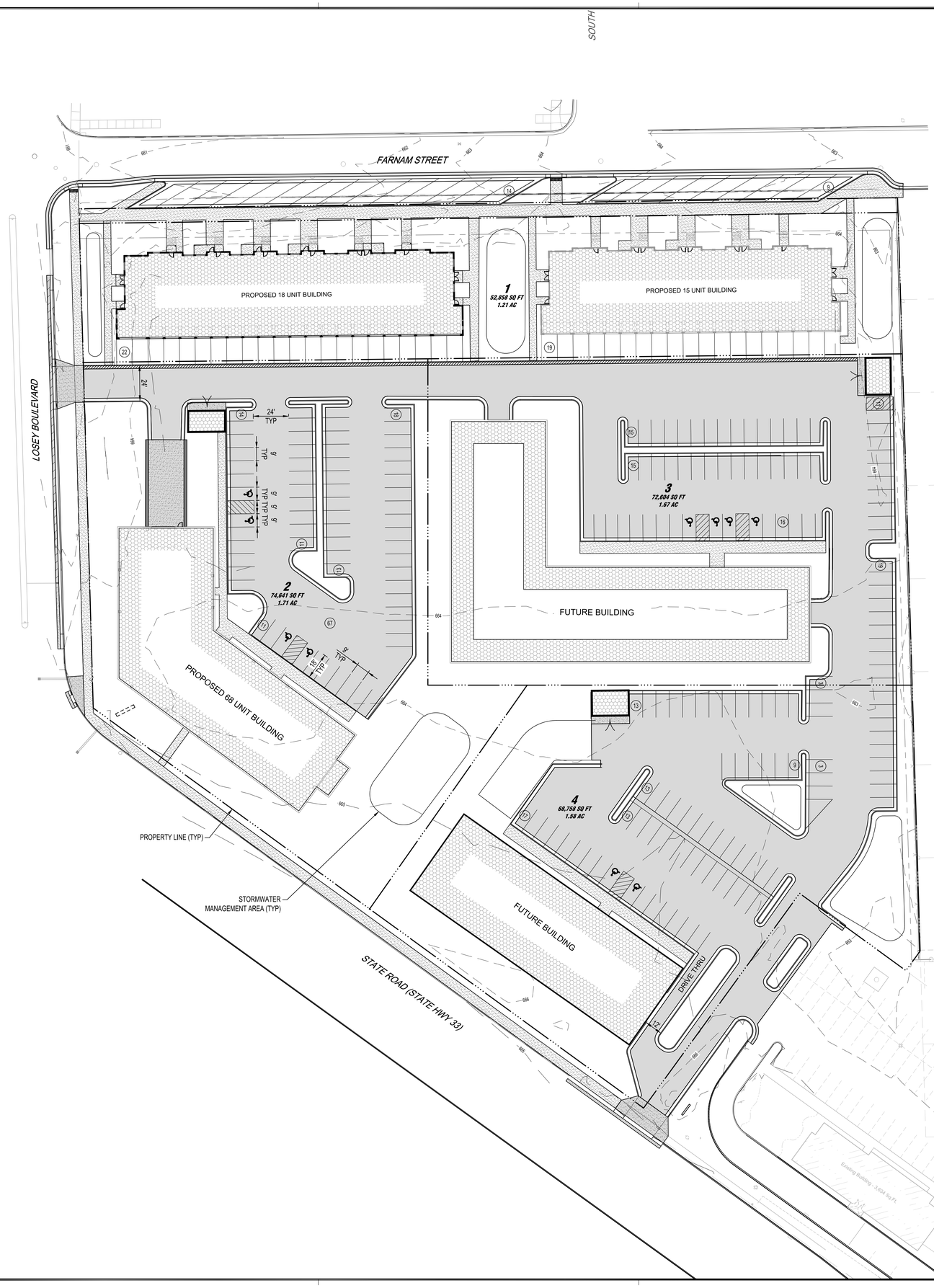
	PARKING	BUILDING
FRONT YARD	5'	N/A
SIDE YARD	5'	N/A
REAR YARD	5'	N/A

DENSITY DATA

NUMBER OF UNITS	205
DENSITY (UNITS/AC)	45
LOT 4 DENSITY	TBD

EXTERIOR PARKING STALLS PROVIDED

STANDARD	261
ACCESSIBLE	10
TOTAL	271



LEGEND

EXISTING		PROPOSED
>>	STORM DRAIN	>>
>	SANITARY SEWER	>
II>	SANITARY SEWER FORCEMAIN	II>
I	WATER MAIN	I
G	GAS	G
OE	OVERHEAD ELECTRIC	OE
UE	UNDERGROUND ELECTRIC	UE
UT	UNDERGROUND TELEPHONE	UT
UTV	UNDERGROUND TV	
OHL	OVERHEAD UTILITY	
UTL	UNDERGROUND UTILITY	
FO	FIBER OPTIC	
WET	WETLAND	
W	WATER EDGE	
X	FENCE LINE	
	PROPERTY / LOT LINE	
	RIGHT OF WAY LINE	
	ACCESS CONTROL	
	EASEMENT LINE	
100	CONTOURS (MAJOR)	100
101	CONTOURS (MINOR)	101
+ 870.5 XX	SPOT ELEVATION	+ 868.5 XX + 870.5 XX
	TOP BACK OF CURB / TOP OF TURNDOWN WALK SPOT ELEVATION	

NOTE:
CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.

PAVEMENT LEGEND

SYMBOL	DESCRIPTION
	BITUMINOUS PAVEMENT
	CONCRETE PAVEMENT
	HEAVY DUTY CONCRETE PAVEMENT
	CONCRETE WALK
	REVERSE PITCH CURB AND GUTTER

ISG

PRELIMINARY NOT FOR CONSTRUCTION

SHEET NOT VALID UNLESS THIS TEXT IS COLOR.

PROJECT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	31707
FILE NAME	31707 C3-SITE
DRAWN BY	---
DESIGNED BY	---
REVIEWED BY	---
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

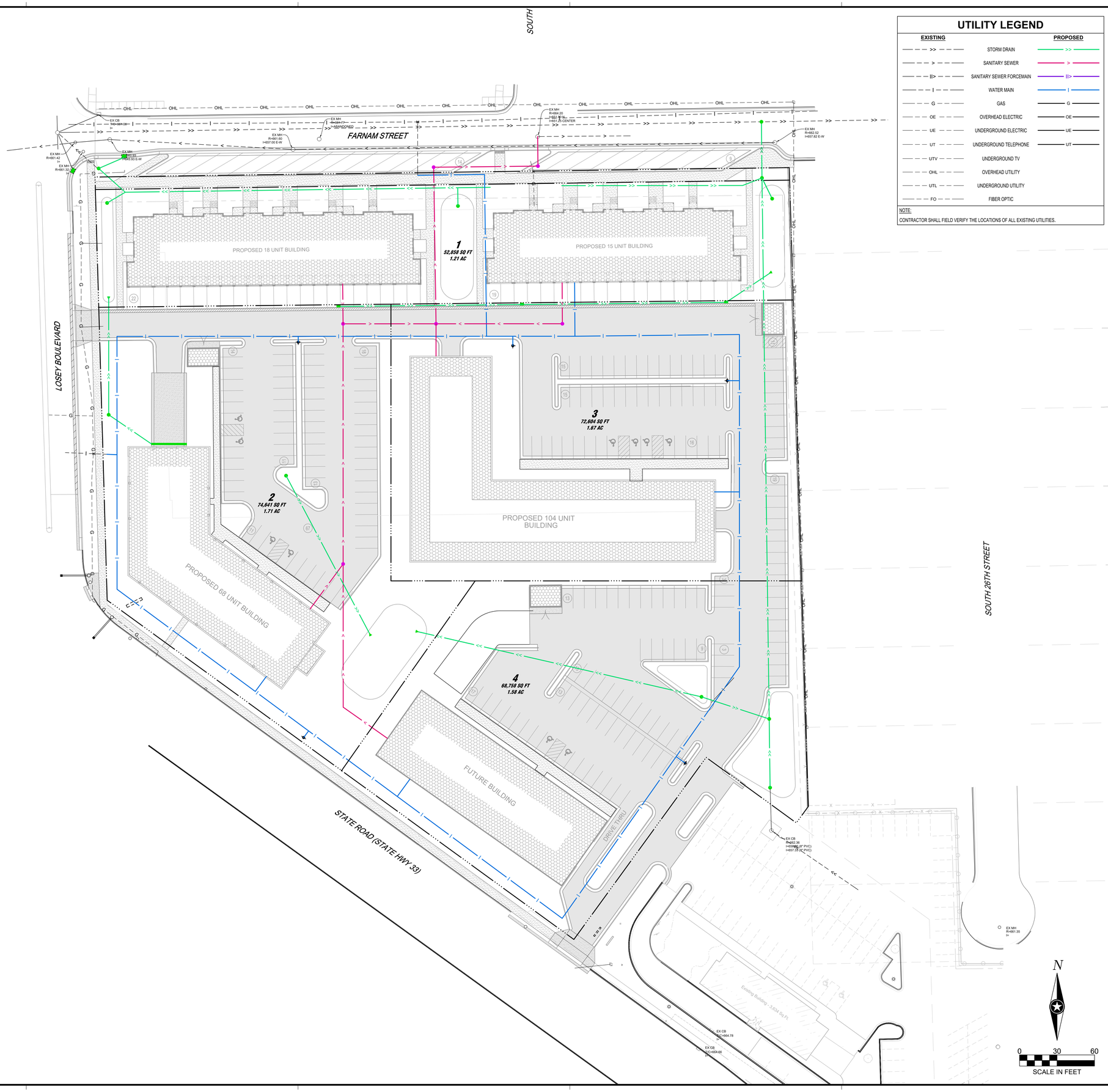
TITLE

SITE PLAN

SHEET

C3-10

PLOT DATE: 10/2/2025, 3:05 PM



UTILITY LEGEND

EXISTING		PROPOSED
>>	STORM DRAIN	>>
>	SANITARY SEWER	>
II>	SANITARY SEWER FORCEMAIN	II>
I	WATER MAIN	I
G	GAS	G
OE	OVERHEAD ELECTRIC	OE
UE	UNDERGROUND ELECTRIC	UE
UT	UNDERGROUND TELEPHONE	UT
UTV	UNDERGROUND TV	
OHL	OVERHEAD UTILITY	
UTL	UNDERGROUND UTILITY	
FO	FIBER OPTIC	

NOTE:
CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.

ISG

PRELIMINARY NOT FOR CONSTRUCTION

SHEET NOT VALID UNLESS THIS TEXT IS COLOR.

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	31707
FILE NAME	31707 C3-UTILITY
DRAWN BY	---
DESIGNED BY	---
REVIEWED BY	---
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

UTILITY PLAN

SHEET

C3-20

This stormwater management narrative has been prepared to accompany the preliminary plans for the proposed Copper Rocks Development which will be located at 2415 State Road. The property will be a Planned Unit Development and will need to meet the requirements of the City of La Crosse Commercial Design Standards Handbook. The project will consist of the construction of 3 mixed use multi-family apartments and 2 townhomes, along with concrete pavement, concrete walk, utilities, erosion control, stormwater management, and landscaping.

A geotechnical Investigation has been completed by Braun Intertec, Inc. to aid in the design of the stormwater management for the site.

DESIGN STANDARDS

The existing site is currently a commercial retail store and parking lot. Therefore, the project will follow redevelopment standards from NR 151 and City of La Crosse Municipal Code of Ordinances as listed in the table below.

Table 1. Design Criteria

	Performance Standard	Requirements
Wisconsin Department of Natural Resources NR 151	Total Suspended Solids NR 151.122	Redevelopment – 40% TSS reduction from parking areas and roads.
	Peak Discharge NR 151.123	Exempt per NR 151.123(2)(b) – Redevelopment Site.
	Infiltration NR 151.124	Exempt per NR 151.124 (3)(b)3 – Redevelopment Site.
	Protective Areas NR 151.125	N/A – No protective areas within proposed site.
	Fueling & Vehicle Maintenance NR 151.126	N/A – No fueling or vehicle maintenance areas within proposed site.
	Location NR 151.127	BMP's will be located on site.
	Timing NR 151.128	BMP's will be installed prior to final stabilization.
City of La Crosse Municipal Code of Ordinances Section 105-61	Total Suspended Solids Sec. 105-61(b)(4)a.	Redevelopment – 40% TSS reduction from parking areas and roads.
	Peak Discharge Sec. 105-61(b)(4)b.	Maintain or reduce 2-yr and 10-yr 24-hour post construction peak runoff to predevelopment rates
	Safe Outlet Sec. 105-61(b)(4)c.	Safe passage of 100-year storm event
	Infiltration Sec. 105-61(b)(4)d.	Redevelopment site (exempt)
	Protective Areas Sec. 105-61(b)(4)e.	N/A – No protective areas within proposed site
	Fueling and vehicle maintenance Sec. 105-61(b)(4)f.	N/A – No fueling or vehicle maintenance areas within proposed site.
	Swale Treatment for Transportation Facilities Sec. 105-61(b)(4)f.	N/A

The disturbed area for this project is 6.3 acres and will decrease the onsite impervious area by approximately 2 acres compared to current conditions. Due to the fact that the disturbed area for this project is over an acre, a Wisconsin DNR WPDES permit will be required along with City Stormwater Management Permits.

EXISTING CONDITIONS

The existing site consists of a commercial building and paved parking lot. The existing parking lot drains to on site storm sewer that ties into Farnam Street to the north into existing City storm sewer. The existing building roof drains also tie into the existing City storm sewer.

PROPOSED CONDISTIONS

The proposed site includes 2 townhomes, 3 apartment buildings, parking, sidewalk, and pedestrian facilities. The proposed site will drain to catch basins and storm sewer that will tie in to Farnam Street similar to existing conditions. The proposed site decreases impervious area from existing conditions by approximately 2 acres which is anticipated to reducing the amount of flow and volume from the site to meet peak runoff requirements.

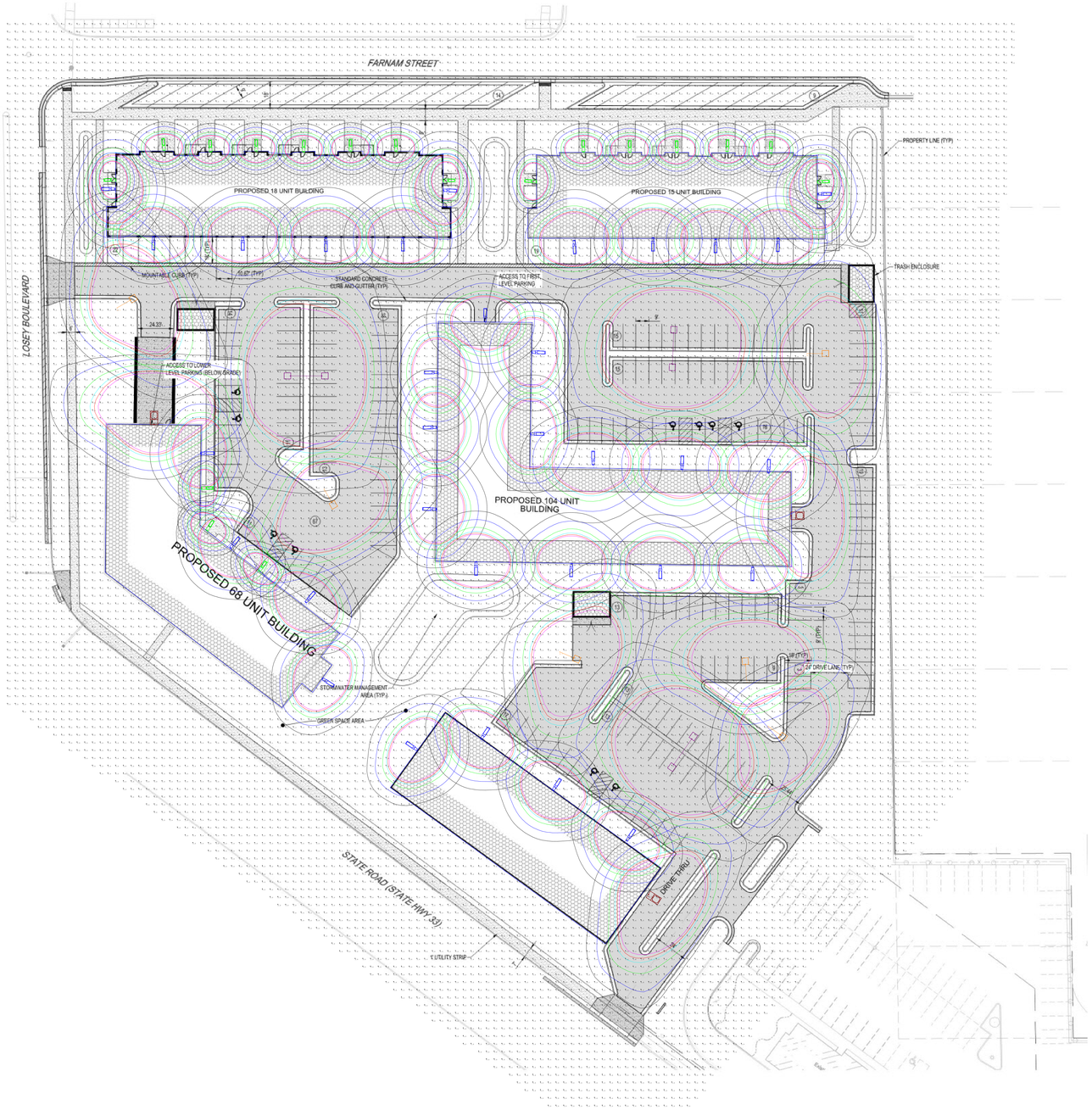
STORMWATER MANAGEMENT SUMMARY

Proposed stormwater management facilities for the project will include bio-infiltration basins to provide TSS removal for site runoff prior to leaving the site.

Water quantity calculations will be completed using hydraulic models developed by utilizing the design data and the HydroCAD Version 10.20-7a computer modeling system. Hydrographs for existing and proposed scenarios will be generated and routed through these models using the Atlas-14 rainfall distribution. The proposed runoff from the events will be analyzed to ensure flow is maintained or reduced compared to existing conditions and the 100-year storm event is safely conveyed by the proposed stormwater management for the site.

Water quality calculations will be completed by utilizing the design data and the WinSLAMM Version 10.5.0 computer modeling system to show that the proposed conditions meet the City and State requirements to reduce total suspended solids by 40% from parking areas and road surfaces compared to no controls.

A maintenance agreement with the City will be required for the bio-infiltration basins. A maintenance plan for the permanent stormwater management facilities will be provided with the final stormwater permit submittal.



Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description	Tag	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
	3	a22-3t-150-150w-5000k_ntclr23_2	Single	A22 @150W5000K	WA	0.950	20731	151.4	454.2
	6	a22-3t-150-150w-5000k_ntclr23_1	Single	A22 @150W5000K	A	0.950	20731	151.4	908.4
	3	a22-3t-150-150w-5000k_ntclr23	Back-Back	A22 @150W5000K	A2	0.950	20731	151.4	908.4
	32	slim22-m-100-85w-5000k-angle-	Single	SLIM22-M-100 @85W5000K angle 0	WL	0.950	12270	85.9	2748.8
	18	slim22-s-30-20w-5000k-angle-0	Single	SLIM22-S-30 @20W5000K angle 0	WS	0.950	3278	21.5	387

DSG TM

#	Date	Comments

Revisions

Drawn By: Ben Klonecki
Checked By:
Date:3/2/2026
Scale:

COPPER ROCKS

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
PARKING LOT AREA	Illuminance	Fc	1.70	41.3	0.0	N.A.	N.A.

Luminaire Location Summary						
		Insertion Point				
LumNo	Label	X	Y	Z	Orient	Tilt
2	slim22-m-100-85w-5000k-angle-	817.767	405.645	15	326.431	0
4	slim22-m-100-85w-5000k-angle-	879.355	359.255	15	144.832	0
7	slim22-m-100-85w-5000k-angle-	920.5	366.5	15	55.784	0
8	slim22-m-100-85w-5000k-angle-	1014.75	300.75	15	54.583	0
9	slim22-m-100-85w-5000k-angle-	966.984	333.315	15	56.478	0
11	slim22-m-100-85w-5000k-angle-	739	551.5	15	0	0
12	slim22-m-100-85w-5000k-angle-	758.25	490.25	15	49.6	0
13	slim22-m-100-85w-5000k-angle-	807	455	15	49.332	0
14	slim22-s-30-20w-5000k-angle-0	776.75	475.25	9	53.13	0
15	slim22-s-30-20w-5000k-angle-0	743	501.5	9	57.095	0
16	slim22-s-30-20w-5000k-angle-0	739.5	529	9	0	0
17	slim22-m-100-85w-5000k-angle-	923.179	636.427	15	89.721	0
18	slim22-m-100-85w-5000k-angle-	892.5	603.75	15	180	0
26	slim22-m-100-85w-5000k-angle-	952.5	564	15	0	0
27	slim22-m-100-85w-5000k-angle-	953.25	617	15	357.089	0
28	slim22-m-100-85w-5000k-angle-	891.5	515.25	15	178.636	0
29	slim22-m-100-85w-5000k-angle-	917.25	481.25	15	270	0
30	slim22-m-100-85w-5000k-angle-	979	480.25	15	268.431	0
31	slim22-m-100-85w-5000k-angle-	1036.5	479	15	270	0
32	slim22-m-100-85w-5000k-angle-	1096.25	477.75	15	268.898	0
33	slim22-m-100-85w-5000k-angle-	708.5	691.75	15	268.854	0
35	slim22-m-100-85w-5000k-angle-	869.75	691	15	271.102	0
36	slim22-m-100-85w-5000k-angle-	820	690.75	15	270	0
37	slim22-m-100-85w-5000k-angle-	766.25	691.5	15	270	0
38	slim22-m-100-85w-5000k-angle-	683.5	722.5	15	180	0
39	slim22-m-100-85w-5000k-angle-	896	721.75	15	357.138	0
40	slim22-s-30-20w-5000k-angle-0	684	728.5	9	181.848	0
41	slim22-s-30-20w-5000k-angle-0	715.25	747.5	9	94.574	0
42	slim22-s-30-20w-5000k-angle-0	745.5	746.5	9	93.18	0
43	slim22-s-30-20w-5000k-angle-0	775	747	9	90	0
44	slim22-s-30-20w-5000k-angle-0	805.5	746.5	9	87.274	0
45	slim22-s-30-20w-5000k-angle-0	836	747	9	90	0
46	slim22-s-30-20w-5000k-angle-0	865.5	747	9	91.548	0
47	slim22-s-30-20w-5000k-angle-0	896	728	9	0	0
48	slim22-s-30-20w-5000k-angle-0	956.279	727.326	9	176.422	0
49	slim22-s-30-20w-5000k-angle-0	986.75	746.5	9	91.397	0
50	slim22-s-30-20w-5000k-angle-0	1016.636	746.255	9	89.29	0
51	slim22-s-30-20w-5000k-angle-0	1047.171	746.166	9	90.996	0
52	slim22-s-30-20w-5000k-angle-0	1079.75	746.75	9	87.207	0
53	slim22-s-30-20w-5000k-angle-0	1108	745.75	9	88.698	0
54	slim22-s-30-20w-5000k-angle-0	1138.242	727.148	9	1.02	0
55	slim22-m-100-85w-5000k-angle-	1138.5	719.25	15	0	0
56	slim22-m-100-85w-5000k-angle-	980.75	689.25	15	273.18	0
57	slim22-m-100-85w-5000k-angle-	1112.75	690.75	15	268.409	0
58	slim22-m-100-85w-5000k-angle-	1072.25	690	15	270	0
59	slim22-m-100-85w-5000k-angle-	1031.75	691	15	270	0
64	slim22-m-100-85w-5000k-angle-	891.75	568.25	15	181.219	0
65	a22-3t-150-150w-5000k_ntclr23	807.25	601.5	22	0	0
66	a22-3t-150-150w-5000k_ntclr23_1	818.75	528.5	22	300.174	0
68	a22-3t-150-150w-5000k_ntclr23	1051	358.25	22	54.851	0
70	a22-3t-150-150w-5000k_ntclr23_1	1092.25	404.75	22	93.576	0
72	a22-3t-150-150w-5000k_ntclr23_1	1131.25	616	22	0	0
74	a22-3t-150-150w-5000k_ntclr23_2	1121	511	20	0.326	0
75	a22-3t-150-150w-5000k_ntclr23_1	1106	375	20	324.866	0
76	a22-3t-150-150w-5000k_ntclr23_2	1028.75	266	20	327.216	0
77	a22-3t-150-150w-5000k_ntclr23_2	708.776	570.091	20	90.026	0
78	a22-3t-150-150w-5000k_ntclr23_1	684.75	645.5	22	29.842	0
79	slim22-m-100-85w-5000k-angle-	993	544	22	90	0
80	slim22-m-100-85w-5000k-angle-	1050.5	541	22	88.182	0
81	slim22-m-100-85w-5000k-angle-	1106.5	538.75	22	87.546	0
82	a22-3t-150-150w-5000k_ntclr23_1	971.25	423	22	336.835	0
83	a22-3t-150-150w-5000k_ntclr23	1044.75	619.25	22	87.689	0

DSG TM

#	Date	Comments

Revisions

Drawn By: Ben Klonecki
Checked By:
Date:3/2/2026
Scale:

COPPER ROCKS



Trees	Genus	Key	#	Count	Size
American Linden	Tilia americana	Tam		4	2" Cal.
American Musclewood	Carpinus caroliniana	Cca		5	#15 multistem
Armstrong Maple	Acer rubrum 'Armstrong'	Aru		3	1.5" cal
Bartlette Pear	Pyrus communis 'Bartlette'	Pco		2	#5 con
Bur Oak	Quercus macrocarpa	Qma		2	2" Cal.
Columnar Swedish Aspen	Populus tremula 'Erecta'	Ptr		7	#15 con tree
Contender Peach	Prunus persica 'Contender'	Ppe		1	5' Bare root
Cornelian Cherry Dogwood	Cornus mas	Cma		3	1.5" con
Eastern RedBud	Cercis canadensis	Cca		17	1.5" cal
Hawthorne Winter King	Crataegus viridis 'Winter King'	Cvi		3	1.5" cal
Hackberry	Celtis occidentalis	Coc		5	1.5" cal
Honey Locust	Gleditsia triacanthos	Gtr		4	1.5" cal
Ironwood	Ostrya virginiana	Ovi		7	1.5" cal
Kentucky Coffee Tree	Gymnocladus dioicus	Gdi		5	1.5" cal
Ohio Buckeye	Aesculus glabra	Agl		5	1.5" cal
Pagoda Dogwood	Cornus alternifolia	Cal		4	#15 multistem
Princeton Elm	Ulmus americana 'Princeton'	Uam		4	1.5" cal
Reliance Peach	Prunus persica 'Reliance'	Ppe		1	#5 con
River Birch	Betula Nigra	BNi		8	#15 multistem
Royal Raindrop Crabapple	Malus JFS-KWS'	MJf		9	1.5" cal
Red Jewel Crabapple	Malus 'Jewelcole'	MJe		5	1.5" cal
Serviceberry Tree	Amelanchier grandiflora 'Autumn Brilliance')	Agr		14	#15 singlestem
Showy Mountain Ash	Sorbus decora	Sde		6	2" Cal.
Superior Plum	Prunus 'Superior'	PSu		2	5' Bare root
Swamp White Oak	Quercus bicolor	Qbi		4	2" Cal.
Tart Northstar Cherry	Prunus cerasus 'North Star'	Pce		4	5' Bare root
Thornless Cockspur Hawthorne	Crataegus crus-galli	Ccr		7	1.5" cal
Toka Plum	Prunus 'Toka'	PTo		2	5' Bare root
Urban Pinnacle Oak	Quercus macrocarpa 'JFS-KWS'	Qma-JFS		4	1.5" cal
Weeping Willow (Niobe Willow)	Salix alba 'Tristis'	Sal		1	2" Cal
			148		TOTAL

Shrubs	Genus	Key	Count	Size
Arctic Fire Dogwood	Cornus stolonifera	Cst	52	#5 Cont.
Aronia Lowscape Mound	Aronia melanocarpa 'UCONNAM165' PPAF; CPBRAF	Arne-UCON	19	#5 Cont.
Black Currant	Ribes nigrum	Rni	16	#5 Cont.
Blizzard Mock Orange	Philadelphus coronarius	Pco	33	#5 Cont.
Bloomerang Lilac	Syringa 'Penda' BLOOMERANG	SPe	20	#5 Cont.
Blue Muffin' Viburnum	Viburnum dentatum 'Blue Muffin'	Vde	80	#5 Cont.
Bush Cinquifoil	Dasiphora fruticosa	Dfr	9	#5 Cont.
Chokeberry Aronia	Aronia Melanocarpa	AMe	65	#5 Cont.
Cranberry Cotoneaster	Cotoneaster apiculatus.	Cap	45	#5 Cont.
Dwarf Bush Honeysuckle	Diervilla lonicera	Dlo	117	#5 Cont.
Elderberry	Sambucus Canadensis	SCa	26	#5 Cont.
Fall-Bearing Raspberry	Rubus idaeus 'Heritage'	Rid	50	#1 Cont.
Fibre-optics Buttonbush	Cephalanthus occidentalis 'Balloptics'	Coc	36	#5 Cont.
Firedance Dogwood	Cornus sericea 'Balladeline'	Cse	12	#5 Cont.
Grey Dogwood	Cornus racemosa	Cra	8	#5 Cont.
Holmstrup Arborvitae	Thuja occidentalis 'Holmstrup'	Toc	11	5'
Jefferson Hazelnut	Corylus avellana	Cav	20	#5 Cont.
Prairie Ninebark	Physocarpus opulifolius	Pop	24	#5 Cont.
Red Currant	Ribes rubrum	Rru	10	#5 Cont.
Rugosa Rose	Rosa rugosa	Rru	102	#5 Cont.
Serviceberry	Amelanchier Alnifolia	AAl	65	#5 Cont.
Snowberry	Symphoricarpos albus	Sal	45	#5 Cont.
St. John's Wort	Hypericum Perforatum	HPe	47	#5 Cont.
Star Power Juniper	Juniperus scopulorum 'Skyrocket'	Jsc	30	5'
Steeplebush	Spiraea tomentosa	Sto	38	#5 Cont.
Sugar Shack Buttonbush	Cephalanthus occidentalis 'Sugar Shack'	Coc-SS	10	#5 Cont.
Summer Wine Ninebark	Physocarpus opulifolius 'Summer Wine'	Pop	4	#5 Cont.
Sweet Fern	Comptonia peregrina	Cpe	63	#5 Cont.
Trautman Juniper	Juniperus chinensis	Jch	24	5'
			1081	TOTAL

Forbs	Genus	Key	Quantity	Quantity
Anise Hyssop	Agastache foeniculum	Afo		4" con
Aromatic aster	Aster oblongifolius	Aob		4" con
Blue False Indigo	Baptisia australis	Bau		4" con
Blue Stemmed Goldenrod	Solidago Caesia	SCa		4" con
Bradbury's Monarda	Monarda Braburiana	MBr		4" con
Butterfly Milkweed	Asclepias Tuberosa	ATu		4" con
Cardinal Flower	Lobelia cardinalis	Lca		4" con
Downy Wood Mint	Blephilia ciliata	Bci		4" con
Golden Alexander	Zizia aurea	Zau		4" con
Hairy Beardtongue	Penstemon hirsutus	Phi		4" con
Ironweed	Vernonia baldwinii	Vba		4" con
Jacob's Ladder	Polemonium caeruleum	Pca		4" con
Joe Pyeweed	Eutrochium purpureum	Epu		4" con
Lanceleaf Coreopsis	Coreopsis lanceolata	Cla		4" con
Meadow Blazing Star	Liatris pycnostachya	Lpy		4" con
New England Aster	Symphyotrichum novae-angliae	Sno		4" con
Ohio Spiderwort	Tradescantia ohiensis	Toh		4" con
Orange Coneflower	Rudbeckia fulgida	Rfu		4" con
Prairie Sundrops	Oenothera pilosella	Opi		4" con
Purple Coneflower	Echinecea Purperea	EPu		4" con
Purple Giant Hyssop	Agastache scrophulariifolia	Asc		4" con
Purple Poppy Mallow	Callirhoe involucrata	CIn		4" con
Rattlesnake Master	Eryngium yuccifolium	Eyu		4" con
Rose Milkweed	Asclepias incarnata	Ain		4" con
Showy Goldenrod	Solidago speciosa	Ssp		4" con
Slender Mountain Mint	Pycnanthemum tenuifolium	Pte		4" con
Stiff Coreopsis	Coreopsis palmata	Cpa		4" con
Whorled Milkweed	Asclepias verticillata	Ave		4" con
Wild Columbine	Aquilegia canadensis	Aca		4" con
Wild Geranium	Geranium maculatum	Gma		#1 con
Wild Mint	Mentha arvensis	Mar		4" con
Wild Nodding Onion	Allium Cernuum	ACe		#1 con
Wild Quinine	Parthenium integrifolium	Pin		4" con
			0	

Grasses/Sedges/Ferns	Genus	Key	Quantity	Size
Brown Fox Sedge	Carex Vulpinoidea	CVu		4" con
Lady Fern	Athyrium filix-femina	Afi		4" con
Little Bluestem	Schizachyrium scoparium	Ssc		#1 con
Maidenhair Fern	Adiantum pedatum	Ape		4" con
Ostrich Fern	Matteuccia struthiopteris	Mst		4" con
Palm Sedge	Carex muskingumensis	Cmu		4" con
Pennsylvania Sedge	Carex pensylvanica	Cpe		#1 con
Plains Oval Sedge	Carex brevior	Cbr		4" con
Prairie Dropseed	Sporobolus heterolepis	She		#1 con
Side Oats Grama	Bouteloua curtipendula	Bou		4" con
Switchgrass	Panicum virgatum 'Shenandoah'	Pvi		#1 con
		TOTAL	0	

Site Notes

Total Landscape Area: 88,166 sq ft

147 trees required per landscape area sq ft requirement

148 trees provided

1,470 shrubs required per landscape area sq ft requirement

1,081 shrubs provided

816 linear ft of frontage

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20 trees provided

Coulee Region Ecoscapes LLC

1522 Green Bay St.
La Crosse, WI 54601

(608) 799-2797

couleeregionecoscapes
@gmail.com

Copper Rocks

Title:
Site Softscape Reference Plan

Project Location:

La Crosse, WI

Revision Date:
12/17/2024

Scale 1:30

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Sheet Number:
L0-01



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Copper Rocks

Title:
Site Softscape Reference Plan

Project Location:

La Crosse, WI

Revision Date:
12/17/2024

Scale 1:30

N

0 5 15 30

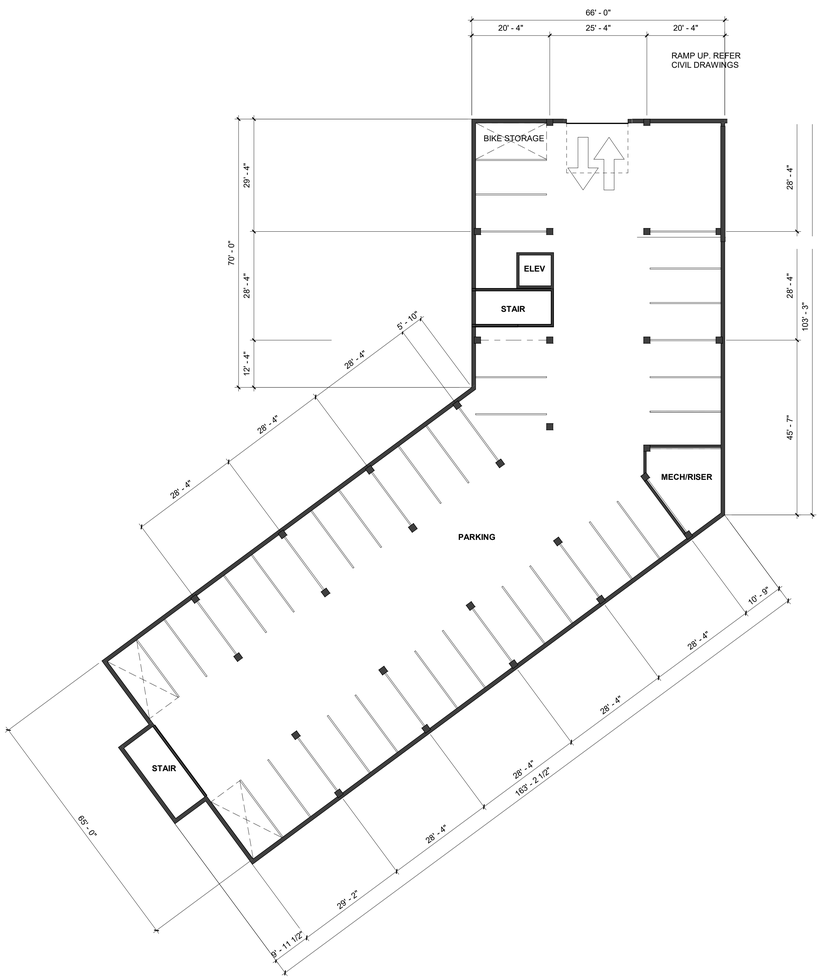
Sheet Number:
LO-01

UNIT MATRIX

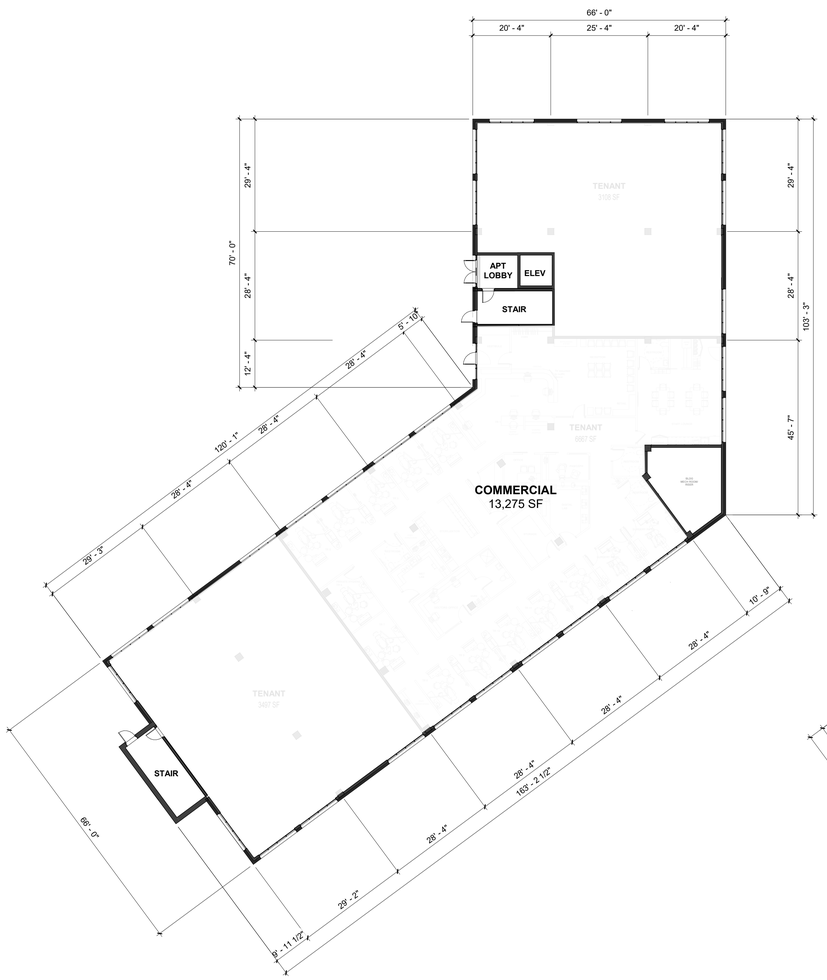
West Building	Units	Unit SF
Studio A	16	531
Studio B	8	430
1 bedroom A	20	780
1 bedroom B	4	1,017
1 bedroom C	8	960
2 bedroom A	12	1,136
2 bedroom B	4	1,245
Total	**72**	
Garage Parking	37	



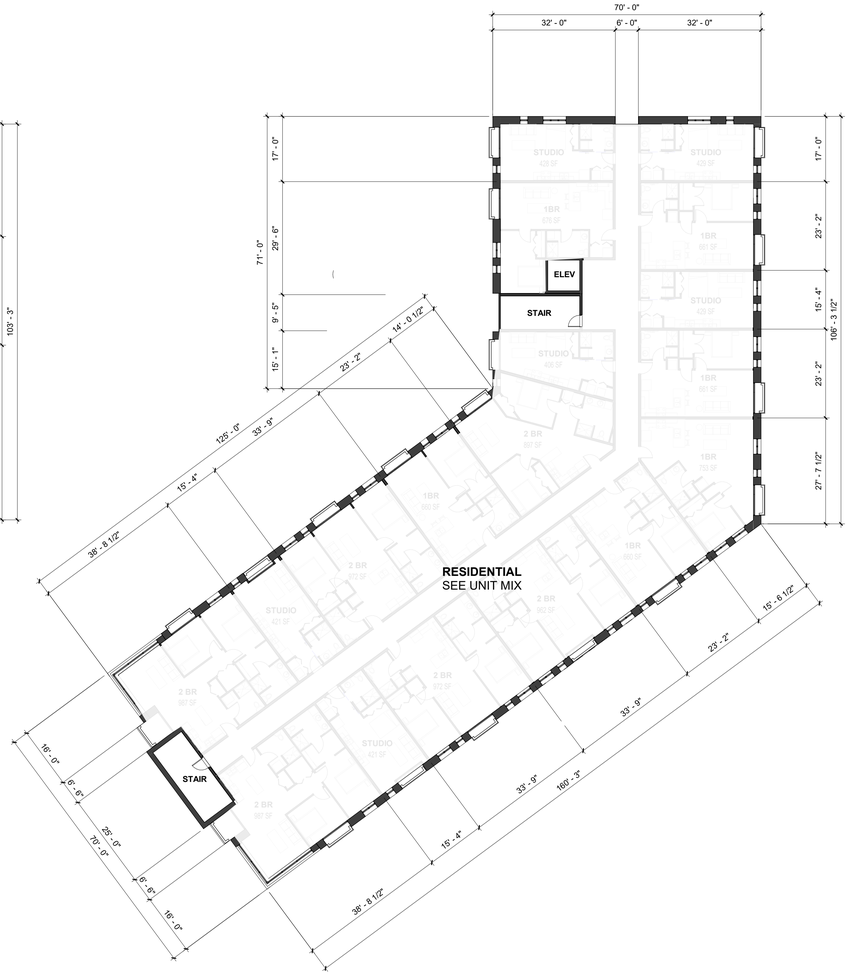




3 GARAGE LEVEL
1/16" = 1'-0"



1 FIRST FLOOR PLAN
1/16" = 1'-0"

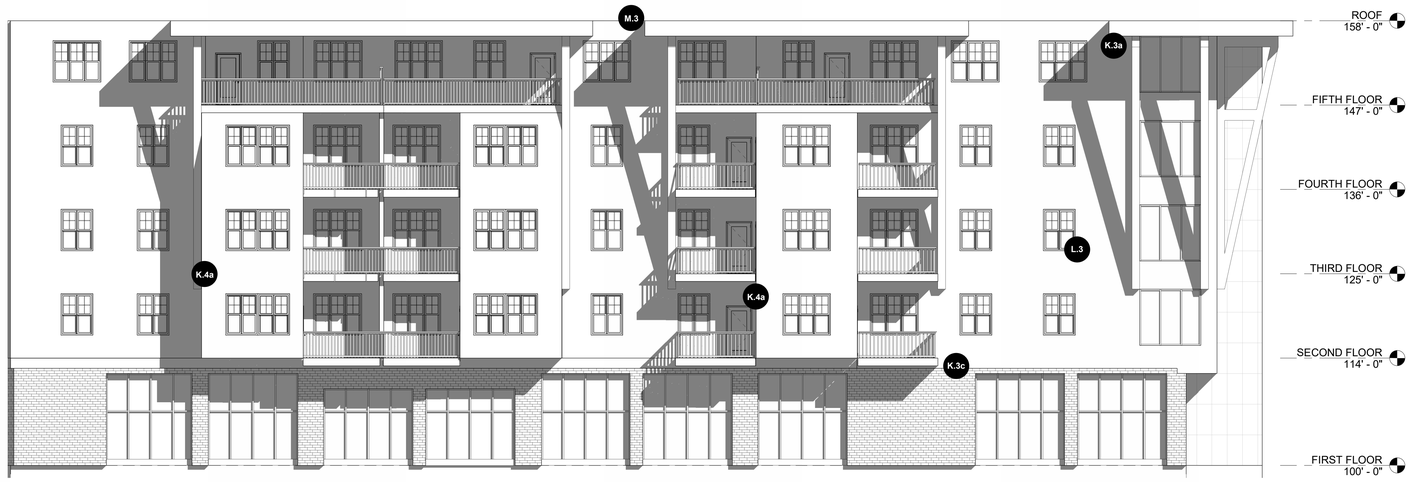


2 SECOND THRU FIFTH FLOOR PLAN
1/16" = 1'-0"



2 WEST BUILDING - EAST ELEVATION B1
1/8" = 1'-0"

STREET FACING FACADE
TOTAL ELEVATION AREA = 3404
MINIMUM FENESTATION REQUIRED = 3404(.2) = 6810 SF
FENESTATION SHOWN = 1650



1 WEST BUILDING - EAST ELEVATION A1
1/8" = 1'-0"

STREET FACING FACADE
TOTAL ELEVATION AREA = 3404
MINIMUM FENESTATION REQUIRED = 3404(.2) = 6810 SF
FENESTATION SHOWN = 1650



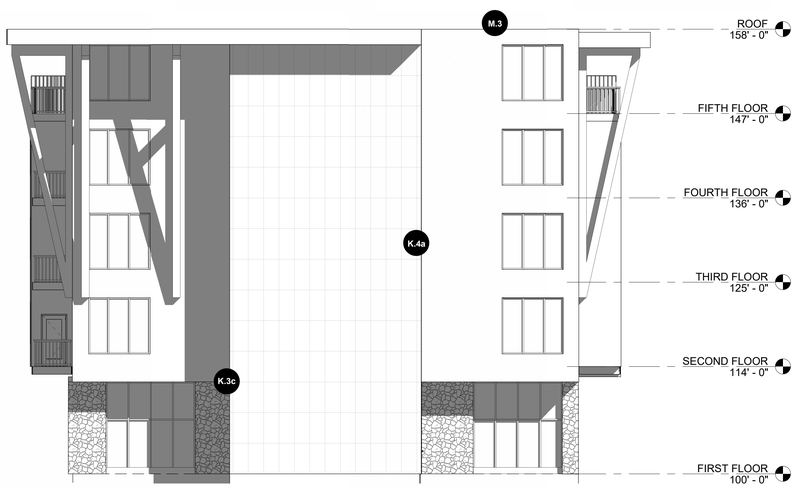
6 WEST BUILDING - WEST ELEVATION B1
1/8" = 1'-0"



5 WEST BUILDING - WEST ELEVATION A1
1/8" = 1'-0"



3 WEST BUILDING - NORTH ELEVATION1
1/8" = 1'-0"



4 WEST BUILDING - SOUTH ELEV
1/8" = 1'-0"

EXTERIOR ELEVATION DESIGN ELEMENTS

K.3a, M.2 - DISTINCT ROOF SHAPES PROVIDE VARIATION IN BUILDING FORM

K.4a - FACADE ARTICULATED WITH PROJECTIONS

L.3, N.3 - TRIM SURROUNDING ALL OPENINGS

K.3b - EMPHASIS OF BUILDING ENTRY THROUGH RECESSED FORM

K.3c - VARIATION OF MATERIAL AND COLOR TO BREAK UP WALL SURFACE

K.4a - FACADE ARTICULATED WITH PROJECTIONS

M.3 - FLAT ROOFS WITH INCORPORATED PARAPET WALL ON ALL SIDES

N.6b NUETRAL PRIMARY SIDING AND CONTRASTING ACCENT SIDING AND TRIM

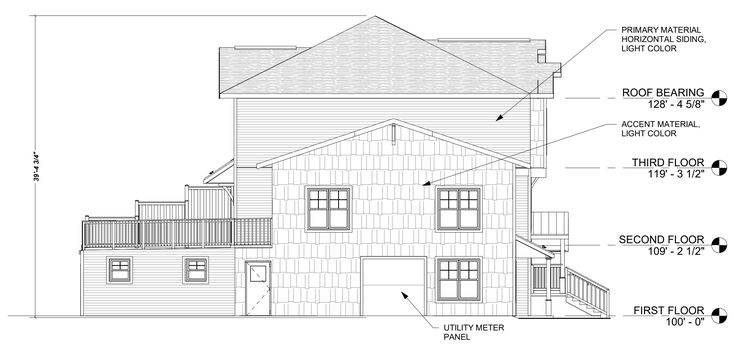




EXTERIOR ELEVATIONS



1 EAST ELEVATION
1/8" = 1'-0"



3 SOUTH ELEVATION
1/8" = 1'-0"



2 WEST ELEVATION
1/8" = 1'-0"



4 NORTH ELEVATION
1/8" = 1'-0"

TOWNHOME EXTERIOR ELEVATIONS **REFER TO SITE PLAN FOR UNIT COUNT**

COMMERCIAL DEVELOPMENT DESIGN STANDARDS APPLICATION

Planning Department · Phone 608.789.7512 · Fax 608 789.7318
http://www.cityoflacrossse.org Planning@cityoflacrosse.org

Permit No.:	
Date:	
STATUS:	Parcel No.:

OWNER

Name: MKB Copper Rocks, LLC - Kirk Stoa			
Address: 3800 Emerald Drive E.			
City: Onalaska, WI 54650			
Phone: (608) 779-2702	Cell: (608) 738-3499	Fax:	E-mail: kstoa@festfoods.com

ARCHITECT CONTRACTOR

Name: ISG - Stephanie Merdan, Senior Project Coordinator			
Address: 201 Main Street, Suite 1020			
City: La Crosse, WI 54601			
Phone: (608) 789-2034	Cell: (507) 330-2789	Fax:	E-mail: Stephanie.Merdan@ISGInc.com

PROJECT

Check One: ☒ Building ☐ Addition ☐ Alteration/Remodel

Description of Work:

The former Kmart site at 2415 State Road in La Crosse is proposed to be redeveloped as a vibrant, community focused mixed-use development named 'Copper Rocks'. The proposed project will consist of three townhome buildings and three mixed-use buildings, as well as parking and outdoor community gathering space to create a vibrant and useful revitalization of the site. The developer will be seeking a rezoning from the current classification to Planned Development District (PDD) zoning allowing for mixed-use. This proposed zoning aligns with the City of La Crosse Comprehensive Plan, as the development will be focused on residents and sustainability.

Pre-application Meeting Date: 02/25/2022

Applying for Exception: ☒ No ☐ Yes (Include $300 Check for Public Notification)

PROPERTY

Project Address: 2415 State Road		
Zoning District: C1-Local Business to PDD	Parcel Number: 17-50298-32	
Address: 2415 State Road	Address same as property owner's address: ☐	
City: La Crosse	State: WI	Zip Code: 54601

OFFICIAL USE ONLY

Date Received: Review Date:

Exception Check: ☐ Yes ☐ No

Required Information: ☐ Site Plan ☐ Architecture Plan ☐ Landscape Plan ☐ Building Elevations & Materials ☐ Exterior Light Diagram ☐ LEED Checklist ☐ Photos

The applicant agrees that all design aspects and maintenance plans are in accordance with the requirements of Section 15.47 of the Code of Ordinances for the City of La Crosse. Application, the checklist, and seven (7) sets of required information must be submitted to the City Inspection Department prior to review and acceptance.

Kevin M. Bills, AIA - ISG
(PRINT) Architect/Engineer Name

Kevin M. Bills 05/17/2022
Signature (Architect/Engineer) Date

Kirk Stoa - MKB Copper Rocks, LLC
(Print) Owner Name

05/17/2022
Signature (Owner) Date

MULTIFAMILY HOUSING DESIGN STANDARDS APPLICATION

Planning Department · Phone: (608) 789-7512 · Fax: (608) 789-7318
http://www.cityoflacrosse.org Planning@cityoflacrosse.org

Permit No:	
Date:	
STATUS:	**Parcel No.:**

OWNER

Name: MKB Copper Rocks, LLC - Kirk Stoa			
Address: 3800 Emerald Drive E.			
City: Onalaska	State: WI		Zip Code: 54650
Phone: (608) 779-2702	Cell: (608) 738-3499	Fax: ( ) -	Email: kstoa@festfoods.com

ARCHITECT CONTRACTOR

Name: ISG - Stephanie Merdan, Senior Project Coordinator			
Address: 201 Main Street, Suite 1020			
City: La Crosse	State: WI		Zip Code: 54601
Phone (608) 789-2034	Cell: (507) 330-2789	Fax: ( ) -	Email: Stephanie.Merdan@ISGInc.com

PROJECT

Check one: ☒ Building ☐ Addition ☐ Alteration/Remodel

Description of Work:

The former Kmart site at 2415 State Road in La Crosse is proposed to be redeveloped as a vibrant, community focused mixed-use development named 'Copper Rocks'. The proposed project will consist of three townhome buildings and three mixed-use buildings, as well as parking and outdoor community gathering space to create a vibrant and useful revitalization of the site. The developer will be seeking a rezoning from the current classification to Planned Development District (PDD) zoning allowing for mixed-use. This proposed zoning aligns with the City of La Crosse Comprehensive Plan, as the development will be focused on residents and sustainability.

Pre-Application Meeting Date: 02/25/2022

Applying for Exception: ☐ No ☒ Yes (include $300 check for public notification)

PROPERTY

Project Address:

Zoning District: C1-Local Business to PDD Planned Development District		Parcel Number: 17-50298-32
Address: 2415 State Road		Address information same as property owner: ☐
City: La Crosse	State: WI	Zip Code: 54601

OFFICE USE ONLY

Date Received	
Review Date	
Exception Check	☐ Yes ☐ No
Required Info	☐ Architectural Plan ☐ Site Plan ☐ Exterior Light Fixture Locations ☐ Photos ☐ Street façade diagram ☐ Design Standards Checklist/LEED Checklist ☐ Landscaping Plan

The applicant agrees that all design aspects and maintenance plans are in accordance with the requirements of Section 15.46 of the Code of Ordinances for the City of La Crosse. Application, the checklist, and seven (7) sets of required information must be submitted to the City Inspection Department prior to review and acceptance.

Kevin M. Bills, AIA - ISG
(PRINT) Architect/Engineer Name

Kevin M. Bills 05/17/2022
Signature (Architect/Engineer) DATE

Kirk Stoa - MKB Copper Rocks, LLC
(PRINT) Owner Name

05/17/2022
Signature (Owner) Date

DESIGN REVIEW CHECKLIST

The checklist must be completed in full by the applicant prior to submission. Completed elements should be checked. Any elements that do not apply to your site or you are requesting an exception on, check the corresponding column and include notes. Items in italics are recommended actions but not required.

		YES	NO	N/A	NOTES
C.2	Parking stalls no closer to street than the building	☐	☒	☐	
C.3	No driveway to the street if lot has alley access	☐	☐	☒	
C.4	Minimum of a 15' landscape buffer between the building and the parking	☐	☒	☐	
C.5	Parking is a minimum of 5' set back from all property lines *(except alley)*	☒	☐	☐	
C.6	Planting islands in parking lot with 12 spaces, and an extra planting island for every additional 20 spaces	☒	☐	☐	
C.7	*In place of C.4, C.5, & C.6*, the rear yard sets aside green space totaling 15% of lot	☒	☐	☐	
C.8	Buffers, setbacks, and planting islands may be used for stormwater infiltration.	☐	☐	☒	
C.9	There is pavement, concrete curb, and gutter in all parking areas with 8 or more spaces	☒	☐	☐	
C.10	Minimum of one off-street parking space per bedroom	☐	☒	☐	
C.11	All parking spaces at least 8.5' by 17'	☒	☐	☐	
C.12	Drive aisle meets minimum width requirement	☒	☐	☐	
C.13	If at least 25% of paved areas uses paving blocks, parking increased by no more than 5%	☐	☐	☒	
C.14	Parking lots on same lot as principle structure	☒	☐	☐	
C.15	Techniques used along edges and parking edges to prevent motor vehicles on grass areas	☐	☒	☐	
C.16a	Parking lot snow storage area(s) designated in parking lot and/or green space buffers	☒	☐	☐	
C.16b	Snow storage area(s) are not within the required outdoor recreational space	☒	☐	☐	
C.16c	Snow Storage area(s) are not located near parking entrances	☒	☐	☐	
C.17	Light-colored and/or reflective surfaces coatings for parking lots	☐	☐	☒	
C.18	Low-impact paving materials and methods used	☐	☐	☒	
C.19	Porous paving materials use to reduce stormwater runoff	☐	☐	☒	
D.2	Pedestrian routes designated and paved	☒	☐	☐	
D.3	Pedestrian routes use concrete or other approved material *(no asphalt or similar material)*	☒	☐	☐	
D.4	Pedestrian routes use porous paving material	☐	☒	☐	
E.2	Site and building plans show all required items	☒	☐	☐	
E.3	No service, utility, or mechanical features within 10' of building front *(except mailboxes)*	☒	☐	☐	
E.4	Trash and recycling containers screened	☒	☐	☐	
E.5	Trash and ash cans at each entrance serving 2 or more units	☒	☐	☐	
E.6a	Heating appliances are located inside the building	☒	☐	☐	
E.6b	High energy gas appliances' intakes and exhaust vents located on the side or rear away from sidewalks, trees, & shrubs	☒	☐	☐	
E.6c	Window-mounted air conditioners are not located in windows facing the street	☐	☐	☒	
E.6d	"Magic Pak" air conditioner/heat pump units on street facing facades	☒	☐	☐	
E.6e	Wall-mounted air conditioners facing the street are masked or blend in with the exterior siding and finishes	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
E.6f	Heat pumps or air conditioners located on the ground are on one side or the rear of the building and are screened	X			
E.6g	Heat pumps or air conditioners located on the roof are one side or the rear of the building and are screened			X	
E.7a	One bike parking space provided for every three bedrooms.	X			
E.7b	Bicycle parking *(accommodating four bicycles)* is at least 9' by 6' or 54 sq.ft. and increase by the same ratio for any additional bike parking spaces.	X			
E.7c	Exterior bicycle parking are either ribbon racks or bike racks.	X			
E.7d	Exterior bike parking areas is located inside/near building entries that is well-lit and not in the front yard or placed to interfere with pedestrian circulation	X			
E.7f	Bikes are not stored, locked, or chained on decks, patios, fences, or any other exterior locations other than in bike racks designed for bicycle parking	X			
E.7g	Bicycle parking areas uses porous pavers *(except the bike rack base is concrete)*			X	
E.8	No outdoor vending machines	X			
F.2	Landscape plan addresses all parts of the parcel and indicates maintenance requirements	X			
F.3a	At least one shade tree per 40 linear feet of lot frontage	X			
F.3b	At least one tree placed in the boulevard per 40 linear feet of lot frontage	X			
F.3c	At least one tree and 10 shrubs per 600 sq. ft. of landscaped area		X		
F.4	Plant size minimum standards have been met in landscape plan	X			
F.5	Boulevard tree species are from the City's approved list	X			
F.6	No *Poplar, Box Elder, Catalpa, Mountain Ash, Willows, Birch, Conifers, Hackberry,* or *Elm* trees	X			
F.7	Existing healthy trees are preserved and indicated in landscape plan			X	
F.8	Landscaping reinforces pedestrian routes	X			
F.9	Parking areas screened from street by shrubs or by other natural landscape screening			X	
F.10	Required sq. ft. of outdoor recreational area on ground level	X			
F.11	Building(s) designed to create usable open space	X			
G.2a	Walls and fences in the front yard do not exceed 4' in height above the finished grade			X	
G.2b	Walls and fences follow the height restrictions in the side and back yards	X			
G.2c	Any fence & retaining wall in the front yard setback that exceed 4' in height has a fence that is least 50% transparent			X	
G.3a	Wall and fence materials coordinated with building materials				
G.3b	Green treated lumber fences are stained or painted			X	
G.3c	Plastic coated chain link fences are not in the front yard or side yard on corner lots			X	
G.3d	Walls constructed with smooth faced concrete bricks/blocks are covered by brick or some other decorative block or dimensional material			X	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
G.4	Fences over 4' in height and/or 50' in length provide a variety of articulation and include at lease one of the following elements: changes in plane, expression of structure, variation of material	☐	☐	☒	
H.2	Stormwater Management and Erosion Control Plan coordinates with Landscape and Open Space Plan and designed by a RLA, Architect, or PE	☒	☐	☐	
H.3	Parking lots with 3 or more spaces direct 80% of water to on-site infiltration basin or rain garden and equals at least 10% of impervious parking and drive area	☐	☒	☐	
H.4	Stormwater is not discharged across sidewalks or neighboring parcels	☒	☐	☐	
H.5	100% of water from 2-year storm infiltrated on-site *(20,000 SF+)*	☐	☒	☐	
H.6	Stormwater facilities designed to enhance appearance of site	☒	☐	☐	
I.2	Exterior lights are residential models and spec sheets are submitted	☒	☐	☐	
I.3	Uniform outdoor pedestrian lighting	☒	☐	☐	
I.4	Parking lot light fixtures no higher than 16' above ground	☒	☐	☐	
I.5	All fixtures are full-cut-off design	☒	☐	☐	
I.6	Overhead light sources not visible from property line w/ 0.5 HFC 25 ft. from property line	☒	☐	☐	
I.7	Lighting levels for parking lot and pedestrian routes are met	☒	☐	☐	
I.8	Exterior entries and garages are designed to have exterior lights	☒	☐	☐	
I.9	Exterior lighting has automatic controls to allow for house number(s) to be visible	☒	☐	☐	
I.10	Exterior lighting along sidewalks and along/inside of parking lots have automatic controls	☒	☐	☐	
I.11	Motion sensor lights, if used, meet the desired standards (≤16ft. above ground, ≤ 2 150 Watts ea., ≥30˚ downward angle, etc.)	☒	☐	☐	
J.2	Balconies/patios facing the street are incorporated into the architectural facade of the building and does not encroach the building setback area by more than 25%	☒	☐	☐	
J.3	No ground level patios/decks facing the street unless landscaped screening is present on at least 2 sides of the patio/deck	☒	☐	☐	
J.4	Any exterior stairs leading to a deck or balcony is entirely in the rear yard; any exterior corridors must not be visible from the street, must be within the building footprint and must be covered by the building's roof	☒	☐	☐	
J.5	Minimum 42" wall or railing for rooftop patio/deck; only outdoor furniture permitted	☒	☐	☐	
K.2	Building plans approved by AIA architect *(50,000+ cubic feet)*	☒	☐	☐	
K.3	Photos of at least 4 street views of nearby blocks submitted with this checklist	☒	☐	☐	
K.4	Building design provides human scale, interest, and variety using at least one of the following methods: variation in building form, diversity of windows, emphasis of building entries, and/or variation of materials	☒	☐	☐	
K.5	Technique(s) used to minimize apparent height *(3+ stories)*	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
K.6	If the building is more than 50% wider than adjacent building, one of the following techniques shall be used to minimize the apparent width: articulate the facade with projections or bays, and/or use architectural elements such as porches, bay windows, and covered entries	☐	☐	☒	
K.6+	The total area of windows and doors on the street facing facade(s), including trim, shall not be less than the twenty (20) percent of the total facade minus gable	☒	☐	☐	
K.7	Windows and door area on street facade at least 20% of total facade *(excluding gables);* diagram illustrating compliance submitted with this checklist	☒	☐	☐	
K.8	Building built to front setback line or follow existing pattern *(avg of adjacent properties)*	☐	☐	☒	
K.9	The building's square footage is less than three times as large as nearest single family residence and is no more than 15' taller (*Washburn Res. District, R-2 District, TND, or in R-3 to R-6 Districts w/ 50%+ parcels zoned R-1)*	☐	☐	☒	
K.10	Received DRC review and approval prior to submittal to the Heritage Preservation Commission for its review and approval *(Historic Districts or adjacent to any designated historic building)*	☐	☐	☒	
L.2	Primary entrance is on front elevation and faces street	☐	☐	☒	
L.3	No more than two entrances per facade *(except in row houses, and in that case, row house entrance requirements are met)*	☒	☐	☐	
L.4	Building entrances emphasized	☒	☐	☐	
L.5	Main entrances covered at least 3 feet	☒	☐	☐	
M.2	All wall openings articulated	☒	☐	☐	
M.3a	Windows keep with the architectural character of the building	☒	☐	☐	
M.3b	Windows have an interior locking or securing mechanism	☒	☐	☐	
M.3c	Windows that open come with an insect resistant screen	☒	☐	☐	
M.4a	Exterior entry doors for individual units are residential in style and are solid or insulated; if there is not a translucent window lower than 5', it must have a security peephole	☒	☐	☐	
M.4b	Exterior doors have hardware matching the style of the building	☒	☐	☐	
M.4c	Sliding doors have an insect resistant screen door	☐	☐	☒	
M.4e	If a garage or accessory building entry door faces a street, alley or public sidewalk it is residential in style	☐	☐	☒	
M.4f	No sliding doors onto patios on the front facade	☒	☐	☐	
N.2	Gable ends 25' or wider have at least a 5/12 pitch with eaves extend 24" and rakes extend 12" beyond exterior wall; if there are eaves, they must be 18" for a 6/12 pitch roof or less	☒	☐	☐	
N.3	Pitched roofs at least 5/12 pitch and at least one gable facing street	☒	☐	☐	
N.4	Flat roofs use parapet walls with appropriate details	☐	☐	☒	
N.5	Large roof, ≥forty (40) ft., articulated with features to minimize apparent bulk: dormers, shifts in height, cupolas, eyebrows, chimneys, or other features	☒	☐	☐	
N.5+	Stormwater from gutters or roof drains do not drain onto sidewalks or neighboring properties.	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
O.2	The use of identical materials on all sides of building or higher quality materials on street facing facade(s) and complementary materials on non-street sides	☒	☐	☐	
O.3	Use of decorative accessories and trim in the form of *f*rieze boards, vertical corner trim, drip caps, gable vents, shingles, and shakes	☒	☐	☐	
O.4	Exterior finish materials do not include vinyl less than 0.44 thick, plywood, chipboard, T1-11, asphalt siding, or smooth-faced concrete block	☒	☐	☐	
O.5	Changes in color and materials occur between horizontal bands to establish “base”, “middle,” and “top,” of building	☒	☐	☐	
O.6	Natural wood is painted or stained (except cedar, redwood, or other naturally weather resistant species & is intended to be exposed); treated wood is painted or stained	☐	☐	☒	
O.7a	Color and design is in general harmony with the overall existing neighborhood and energy use conscious	☒	☐	☐	
O.7b	Neutral or natural colors used for primary siding with brighter or darker colors for accent and trim	☒	☐	☐	
O.7c	Complimentary multi-color and textured roofing materials that are interesting and cooler in summer months	☒	☐	☐	
O.7d	Location on the lot and exterior design is balanced and fits with the natural landscape of the lot and the general neighborhood	☒	☐	☐	
P.2	No street-facing garages on lot served by alley	☒	☐	☐	
P.3	Total width of garage doors facing street ≤ 50% of building width	☐	☐	☒	
P.4	Garages, carports, & accessory buildings are architecturally compatible and use the same finish materials as the primary building	☒	☐	☐	
P.5	Garages have at least one window, containing no less than 576 square inches per 2 stalls	☐	☐	☒	
P.6	Unattached garages shall have at least one service door	☐	☐	☒	
Q.2	Soundproofing used in all shared interior walls and floors and have a STC that meet sec. 1207 of the IBC	☒	☐	☐	
Q.3	Buildings and sites qualify for LEED for Homes certification *(30 of the possible 108 points on checklist)*	☐	☐	☒	
R.2	Long-term maintenance program for all exterior aspects of development	☒	☐	☐	

MAY 20, 2022

Tim Acklin
Planning & Development Department
City Planning Department
400 La Crosse St
La Crosse, WI 54601

RE: PLAN REVIEW RESPONSE LETTER – FINAL DESIGN REVIEW
COPPER ROCKS DEVELOPMENT – 2415 STATE RD, LA CROSSE, WISCONSIN

Tim,

Thank you for your plan review letter dated March 11, 2022. We have prepared the following information to address your review comments. Please note that for your convenience each review item is restated below along with our corresponding response.

Requirements Prior to Issuance of a Demolition or Footing &Foundation Permit.

1. Approval of a Certified Survey Map. (If applicable).

ISG Response: Noted, CSM will be completed prior to permit. A draft CSM has been included for reference but is not intended for full City CSM review at this time.

2. Combination of parcels for project site. (If applicable).

ISG Response: CSM will be prepared for the site.

3. Approval of Final Plans from the Engineering Department.

ISG Response: Noted.

4. Approval of Final Plans from the Utility/Water Department.

ISG Response: Noted.

5. Approval of Final Plans from the Division of Fire Prevention and Building Safety (Inspections).

ISG Response: Noted.

Requirements Prior to Issuance of a Building Permit

1. Approval of Final Plans from the Planning and Development Department.

ISG Response: Noted.

Requirements Prior to Issuance of an Occupancy Permit

1. A Letter of Credit in the estimated cost amount of the proposed landscaping has been submitted to the Planning and Development Department to guarantee the proper installation and growth of all landscape improvements proposed in the approved Landscape Plan OR all proposed landscaping in the approved Landscape Plan has been installed.

ISG Response: Noted.

2. A stamped letter of substantial completion from the design engineer of the project within 10 days of completion.

ISG Response: Noted.

3. Field review and approval of the completed stormwater management facility by the City's Utilities Department.

ISG Response: Noted.

Engineering Department (Traffic) - (Contact-Matt Gallager-789-7392, Stephanie Sward-789-8171, Jamie Hassemer- 789-8182, Cullen Haldeman- 789-8185)

1. Will the surface stalls for the townhomes be labeled as per townhome residents only?
   a. Applicant-Yes

ISG Response: Yes, they will be.

2. The parking stalls proposed on Farnam Street cannot be included in the total number of parking provided for the site since they are public on street parking.

ISG Response: Noted. Stalls have been removed from parking count

3. Please show sidewalk connection with 25th Street S.

ISG Response: Crosswalk on 25th Street has been added to the plan.

4. Change ROW line along Farnam Street to include new sidewalk in public right of way.

ISG Response: ROW line has been adjusted to include sidewalk.

5. Provide dimensions of parking stalls along Farnam Street length and width of rectangular parking stall.

ISG Response: Stall dimensions have been added to the plan.

6. Provide dimensions of parking stalls (typical is adequate).

ISG Response: Parking stall dimensions have been added to the plan.

7. Provide driving aisle dimension.

ISG Response: Drive aisle dimensions have been added to plan.

8. Provide ADA and access isle dimensions.

ISG Response: ADA stalls and aisles have been added to the plan.

9. The sidewalk along State Road preferred width of 7 feet with a 1-foot utility strip.

ISG Response: Sidewalk has been adjusted as noted.

10. Provide standard driveway taper for driveway on State Road.

ISG Response: Driveway taper has been added.

11. Will need a photometric plan and cut sheets/specifications of the lighting fixture.
    a. 1 ft candle average /uniformity 4 or better.

ISG Response: Photometric plan will be submitted at a later date prior to permit issuance.

12. Need grades on new and replacement sidewalks and curb ramp.

ISG Response: Grades have been added to the grading plan for publics sidewalk and ramps.

13. ROW issue on Farnarm should be addressed as part of the CSM submittal for the sit.

ISG Response: ROW will be dedicated as part of the CSM.

Division of Fire Protection and Building Safety (Building and Inspections Department) (Contact-Eddie Young- 789-7582, Jason Riley- 789-7585)

1. State Plumbing Plans are required.

ISG Response: Noted.

2. Show details of looped main. (surface laterals).

ISG Response: Watermain sizes, valve, and hydrant locations have been added to plan.

3. If tying into existing water off of Losey Blvd need to meet the City requirements for connection and design.

ISG Response: Double check valve assembly for backflow prevention has been added to meet State plumbing code requirements.

4. Must meet the City's meter policy. Policy attached.

ISG Response: Noted.

5. Setbacks and parking spots can be approved by Council through zoning. – no issues.

ISG Response: Noted.

6. Will need separate permits for each building- Also includes state review.

ISG Response: Noted.

7. Will need a Demolition Permit for existing building- CUP is required if demolition is desired before applying for building permits.

ISG Response: Noted.

8. Any fencing and signage will need separate permits.

ISG Response: Noted.

Police Department- Cory Brandl-789-7206

1. No comments have been provided at this time.

Planning Department-(Contact-Tim Acklin-789-7391)

1. Flat Roofs are permitted must incorporate a parapet wall on all sides unless rear is sloped for drainage. Should include architectural details appropriate to the building design that create a positive visual termination for the building. (M3-Commerical) (N4-Multi-Family).

ISG Response: Noted

2. Garage doors- encouraged to consider a window slat or some other feature to break up a wall look.

ISG Response: Noted

Utilities Department- (Bernie Lenz-789-7588, Brian Asp- 789-3897) Water

1. The utility needs to see the details of the water lines include on future plans.
    a. Pipe size
    b. Valve locations
    c. Any proposed cross connections, with check valves (tap records attached)
        i. https://library.municode.com/wi/la_crosse/codes/code_of_ordinances?nodeId=PTIGEOR_CH46UT_ARTIIWAUT_S46-40CRCOCO
    d. Meter and curb stop locations (meter access code attached)

ISG Response: Thank you for providing the tap records. Pipe sizes and valve locations have been added to the plan. Meter locations will be provided at a later date per the meter access code requirements.

Storm Sewer

1. You show tying into an existing catch basin, with this large property, the capacity of the catch basin lead concerns the city.

ISG Response: On site stormwater management has been designed to maintain flow to the existing tie in to City storm sewer.

2. The storm sewer at the SE corner of the lot crosses the parcel lines, please address this in future plans.

ISG Response: Connection to existing storm sewer on south side of lot will be within a drainage and utility easement to maintain existing drainage conditions. This is shown on the draft CSM.

3. You do show at least a small amount of surface flow from the neighboring parcel, please address this in future plans.

ISG Response: Flow patterns to the south of the site will be within a drainage and utility easement to maintain existing drainage conditions. This is shown on the draft CSM.

Sanitary Sewer

4. The capacity of the 8" sewer in Farnam St. is a concern to the utilities, if the 12" line is too shallow to connect to, please provide the city with flow calculations for the sanitary sewer to assess our capacity in the 8" line, and the lift station downstream.

ISG Response: After further review, there is a considerable change in depth in the in the 12" sanitary line at the intersection of Losey Blvd. Sanitary tie in location has been changed to this location. Calculations of sanitary flow from the development are also included.

Engineering Department (Stormwater) - (Contact-Yuri Nasonovs-789-7594)

1. Understanding: Developer will pursue same concept as 5th Ward residences.

ISG Response: Correct. Maintenance plan for stormwater management is included in the submittal. Copies of individual lot maintenance agreements will be provided at a later date.

2. Need to see completed and approved (by Scott Dunnum) CSM. Adequate drainage easements should be included.

ISG Response: Noted. Final CSM will be prepared and submitted to the City at a later date. A copy of the draft CSM is included with the submittal for reference.

3. Each proposed parcel will need to obtain separate WQML, stormwater permit and record Maintenance Agreement (same template as 5th Ward).

ISG Response: Noted.

4. Provide model 40% TSS removal.

ISG Response: WinSLAMM model showing 40% TSS removal is included with the submittal.

5. HydroCADD model is not necessary (1.5 ac. decrease in impervious area) but might be necessary to show load at the point(s) of connection to the public stormwater system. Concern: public system has adequate capacity.

ISG Response: HydroCAD model is included with the submittal for sizing of the stormwater management system.

6. 100-year safe passage.

ISG Response: HydroCAD model is included with the submittal for confirmation of 100-year safe passage.

Fire Department- (Contact-Steve Cash- 789-3868)

1. Sprinkler and Fire Alarm plans need State review and approval.

ISG Response: Noted.

2. KNOX Box required for each building.

ISG Response: Noted.

3. Any commercial spaces requiring a Hood Systems will need to be permitted separately.

ISG Response: Noted.

4. Fire Department will need access to the center building of site. Need to see turning radius. The Fire Department access road to needs to meet NFPA 1 (2012) 18.2.3.

ISG Response: Fire truck turning movement exhibit has been included along with a hydrant coverage map with the submitted plans to ensure access to all buildings on site.

5. Fire connection has to be within 150ft of hydrant.
    a. Private hydrant must meet specs, labeled and identify location on plans.

ISG Response: Private hydrant locations are shown on the hydrant coverage map along with coverage area using a 150 FT radius.

Parks, Recreation, and Forestry- (Contact-Dan Trussoni 789-4915)

1. Blvd space along Losey Blvd and State Rd- plantings on private land or ROW?
    a. State Rd on private land.
    b. Losey Blvd shows multi-stem- needs to be single stem. Please revise.
    c. Needs to be 35ft between trees in blvd
    d. Planting specifications needed on plan

CRE Response: All boulevard trees are on 35' spacings and single-stem (plantings adjusted as needed). Planting Specs have been added to plan.

Please contact me at 608.789.2034 or via email at Stephanie.Merdan@ISGInc.com with any questions or if there is any additional information we can provide in support of this project.

Sincerely,



Stephanie Merdan
Senior Project Coordinator
Stephanie.Merdan@ISGInc.com

This stormwater management narrative has been prepared to accompany the site plans for the proposed Copper Rocks Development which will be located at 2415 State Road. The property will be a Planned Unit Development and will need to meet the requirements of the City of La Crosse Commercial Design Standards Handbook. The project will consist of the construction of 3 mixed use multi-family apartments and 3 townhomes, along with asphalt pavement, concrete pavement, concrete walk, utilities, erosion control, stormwater management, and landscaping.

A geotechnical Investigation has been completed by Braun Intertec, Inc. to aid in the design of the stormwater management for the site. Test pits were completed to determine infiltration rates and indicate that the proposed design infiltration rate is 0.5 in/hr. This infiltration rate has been used for the design of the permanent stormwater management for the site.

DESIGN STANDARDS

The existing site is currently a commercial retail store and parking lot. Therefore, the project will follow redevelopment standards from NR 151 and City of La Crosse Municipal Code of Ordinances as listed in the table below.

Table 1. Design Criteria

	Performance Standard	Requirements
Wisconsin Department of Natural Resources NR 151	Total Suspended Solids NR 151.122	Redevelopment – 40% TSS reduction from parking areas and roads.
	Peak Discharge NR 151.123	Exempt per NR 151.123(2)(b) – Redevelopment Site.
	Infiltration NR 151.124	Exempt per NR 151.124 (3)(b)3 – Redevelopment Site.
	Protective Areas NR 151.125	N/A – No protective areas within proposed site.
	Fueling & Vehicle Maintenance NR 151.126	N/A – No fueling or vehicle maintenance areas within proposed site.
	Location NR 151.127	BMP's will be located on site.
	Timing NR 151.128	BMP's will be installed prior to final stabilization.
City of La Crosse Municipal Code of Ordinances Section 105-61	Total Suspended Solids Sec. 105-61(b)(4)a.	Redevelopment – 40% TSS reduction from parking areas and roads.
	Peak Discharge Sec. 105-61(b)(4)b.	Maintain or reduce 2-yr and 10-yr 24-hour post construction peak runoff to predevelopment rates
	Safe Outlet Sec. 105-61(b)(4)c.	Safe passage of 100-year storm event
	Infiltration Sec. 105-61(b)(4)d.	Redevelopment site (exempt)
	Protective Areas Sec. 105-61(b)(4)e.	N/A – No protective areas within proposed site
	Fueling and vehicle maintenance Sec. 105-61(b)(4)f.	N/A – No fueling or vehicle maintenance areas within proposed site.
	Swale Treatment for Transportation Facilities Sec. 105-61(b)(4)f.	N/A

The disturbed area for this project is 6.96 acres and will decrease the onsite impervious area by 1.69 acres compared to current conditions. Due to the fact that the disturbed area for this project is over an acre, a Wisconsin DNR WPDES permit will be required along with City Stormwater Management Permits.

EXISTING CONDITIONS

The existing site consists of a commercial building and paved parking lot and is 100% impervious. The existing building and parking lot drains to on site storm sewer that ties into Farnam Street to the north into existing City storm sewer.

PROPOSED CONDISTIONS

The proposed site includes 3 townhomes, 3 mixed-use buildings, parking, sidewalk, and pedestrian facilities. The proposed site will drain to catch basins and storm sewer that will tie in to Farnam Street at the existing connection. The proposed site decreases impervious area from existing conditions by therefore reducing the amount of flow and volume from the site to meet peak runoff requirements. An underground stormwater management system has been designed to provide the required TSS removal for the site as well as provide storage to reduce peak flows and maintain the existing connection to the City storm sewer. The underground system and site grading have also been designed to provide safe passage of the 100-year storm event to City ROW. The site will be separated into 4 different parcels as part of the project. Drainage, access, and utility easements will be provided are shown on the draft CSM included with the submittal. The underground infiltration system will provide the required stormwater management for all parcels included in the project.

STORMWATER MANAGEMENT SUMMARY

Proposed stormwater management facilities for the project will include the underground infiltration device to provide storage and TSS removal for site runoff prior to leaving the site.

Water quantity calculations have been completed using hydraulic models developed by utilizing the design data and the HydroCAD Version 10.10-7a computer modeling system. Hydrographs for proposed scenarios were generated and routed through these models using the Atlas-14 rainfall data and an MSE type 3 distribution. The proposed runoff from the events was analyzed for design of the underground infiltration system for maintaining flow through the existing connection to the City storm sewer as well as safe passage of the 100-year event. The HydroCAD model has been included with the submittal.

Water quality calculations have been completed by utilizing the design data and the WinSLAMM Version 10.4.1 computer modeling system. The model shows that the proposed underground infiltration system provides 47.53% TSS removal compared to no controls using suitable parameters for the La Crosse area. This confirms that the proposed stormwater management for the site will meet the City and State requirements to reduce total suspended solids by 40% from parking areas and road surfaces compared to no controls.

A maintenance agreement with the City will be required for the underground chambers. A maintenance plan for the permanent stormwater management facilities on site is included with the submittal. Each parcel will have a separate maintenance agreement with the City to be drafted and submitted for review at a later date.

Geotechnical Evaluation Report

Proposed Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

Prepared for

Mettera, LLC

Brandon K. Wright, PE
Senior Engineer
License Number: 40141
May 6, 2022



BRAUN INTERTEC
The Science You Build On.

Project B2202146

Braun Intertec Corporation

BRAUN INTERTEC
The Science You Build On.

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May 6, 2022 Project B2202146

Mr. Roger Lundsten
Mettera, LLC
1243 Badger Street
La Crosse, WI 54601

Re: Geotechnical Evaluation
Proposed Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

Dear Mr. Lundsten:

We are pleased to present this Geotechnical Evaluation Report for the proposed Copper Rock Development project.

Thank you for making Braun Intertec your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Brandon Wright at 608.781.7277 or by email (bwright@braunintertec.com).

Sincerely,

BRAUN INTERTEC CORPORATION

Brandon K. Wright, PE
Senior Engineer

Ray A. Huber
Vice President

AA/EOE

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Appendix

Soil Boring Location Sketch
Log of Standard Penetration Test Boring Sheets
Log of Cone Penetration Test Sounding
Descriptive Terminology of Soil
Descriptive Terminology Cone Penetration Test
Wisconsin DSPS Soil and Site Evaluation Storm Form

A. Introduction

A.1. Project Description

This Geotechnical Evaluation Report addresses the proposed design and construction of the proposed Copper Rocks Development project located at 2415 State Road in La Crosse, Wisconsin. The project will include the construction of up to six structures with mixed residential and commercial use. Figure 1 shows an illustration of the proposed site layout.

Figure 1. Proposed Site Layout

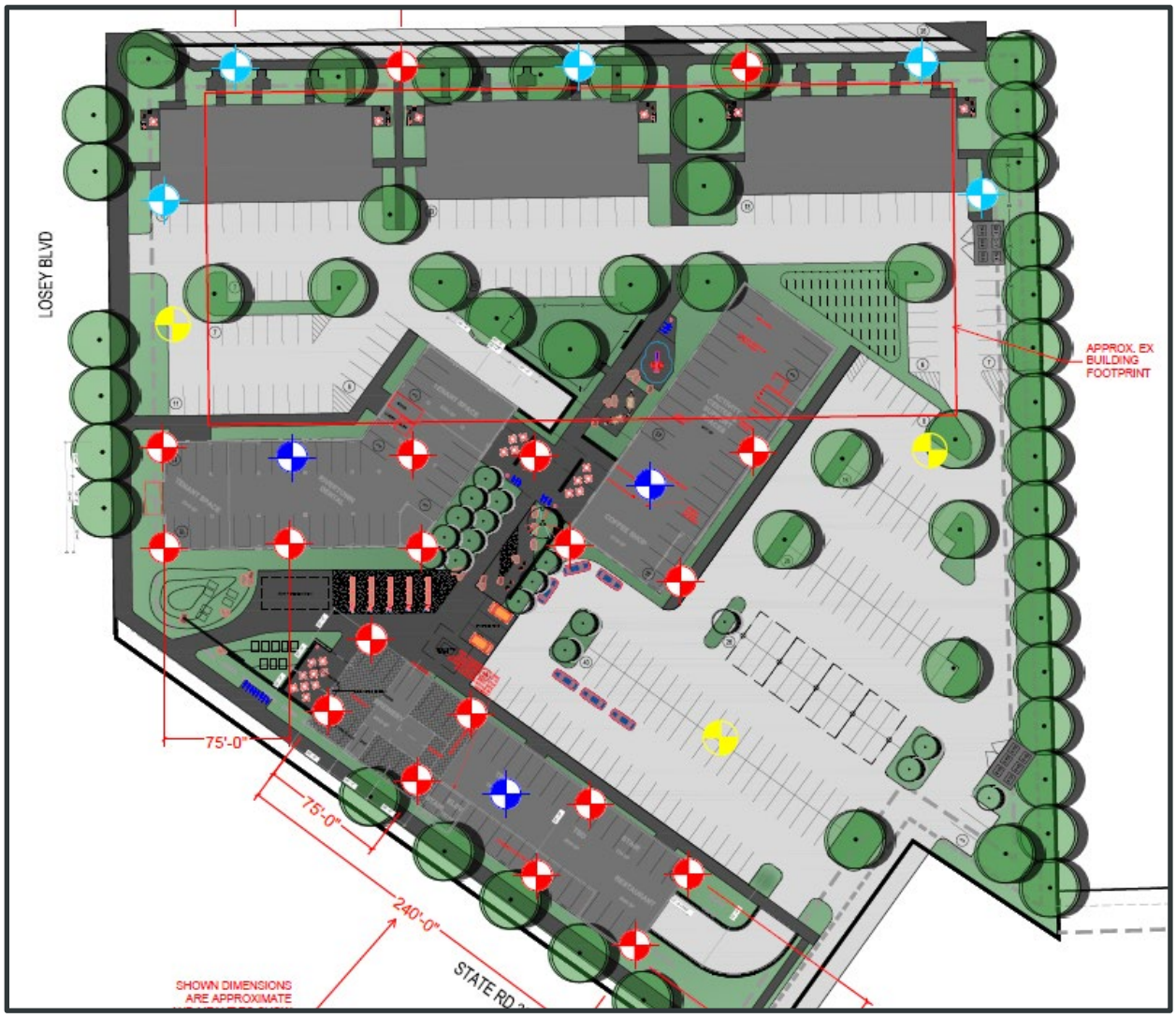


Figure provided by I&S Group, dated February 1, 2022.

Three of the structures will have below-grade parking and three of the structures will be slab-on-grade. The largest building is expected to be composed of one- to two-levels of pre-cast concrete framing with up to 4 levels of wood framing above. Buildings with below-grade parking will have a connecting below-grade tunnel providing access to each of the buildings. Associated parking, pavements, underground utilities, and landscaping are also planned for the project. Tables 1 and 2 provide project details.

Table 1. Building Description

Aspect	Description	
	Single-Story Commercial	Multi-Story Mixed Use
Below grade levels	None	1
Above grade levels	1	4 to 6
Provided Lowest level floor elevation (ft)	664.6 to 665.1	655.3
Assumed Column loads (kips)	100	550
Assumed Wall loads (kips/ft)	5	10

Table 2. Site Aspects and Grading Description

Aspect	Description
Pavement type(s)	Bituminous or Concrete
Provided/Assumed pavement loads	Light-duty: 50,000 ESALs*
	Heavy-duty: 150,000 ESALs*
Grade changes	Within 1 to 2 feet of existing site grades

*Equivalent 18,000-lb single axle loads based on 20-year design for bituminous and 35-year for concrete.

We have described our understanding of the proposed construction and site to the extent others reported it to us. Depending on the extent of available information, we may have made assumptions based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, the project team should notify us. New or changed information could require additional evaluation, analyses and/or recommendations.

A.2. Site Conditions and History

Currently, the site exists as a developed, but vacant, commercial property. The site is 6-acres and contains an approximate 90,000-square-foot, single story, former Kmart retail store. The site also contains an existing parking lot and underground utilities.

A.3. Purpose

The purpose of our geotechnical evaluation will be to characterize subsurface geologic conditions at selected exploration locations, evaluate their impact on the project, and provide geotechnical recommendations for the design and construction of footings, ground supported slabs, lateral earth pressures, pavement thickness designs, and storm water infiltration discussion.

A.4. Scope of Services

We performed our scope of services for the project in accordance with our Proposal QTB153342, dated March 14, 2022. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Staking and clearing the exploration location of underground utilities. I & S Group selected, and we staked the exploration locations. We acquired the surface elevations and locations with GPS technology. The Soil Boring Location Sketch included in the Appendix shows the approximate locations of the borings.
- Performing standard penetration test (SPT) borings, cone penetration test (CPT) soundings, and test pits (TP). In total, we drilled 8 SPT borings, 19 CPT soundings, and logged 3 test pits.
- Performing laboratory testing on select samples to aid in soil classification and engineering analysis.
- Preparing this report containing a boring location sketch, logs of soil borings, a summary of the soils encountered, results of laboratory tests, and recommendations for structure and pavement subgrade preparation and the design of foundations, floor slabs, exterior slabs, utilities, stormwater improvements and pavements.

Our scope of services did not include environmental services or testing and our geotechnical personnel performing this evaluation are not trained to provide environmental services or testing. We can provide environmental services or testing at your request.

B. Results

B.1. Geologic Overview

We based the geologic origins used in this report on the soil types, in-situ and laboratory testing, and available common knowledge of the geological history of the site. Because of the complex depositional history, geologic origins can be difficult to ascertain. We did not perform a detailed investigation of the geologic history for the site.

B.2. Boring Results

B.2.a. Standard Penetration Test Borings

Table 3 provides a summary of the soil boring results; in the general order we encountered the strata. Please refer to the Log of Boring sheets in the Appendix for additional details. The Descriptive Terminology sheets in the Appendix include definitions of abbreviations used in Table 3.

Table 3. Subsurface Profile Summary*

Strata	Soil Type - ASTM Classification	Range of Penetration Resistances	Commentary and Details
Pavement materials	NA	NA	▪ Bituminous thickness 2 to 5 inches. ▪ Apparent aggregate** base is 6 to 9 inches.
Fill***	SP, SP-SM, SM	8 to 22 BPF	▪ Below the pavement materials, Borings ST-01, ST-02, ST-03, and ST-05 encountered fill. ▪ Fill was composed of sandy soils that extended to depths of 3 to 6 ½ feet. ▪ Based on penetration resistance testing, the fill appears to have received variable compaction effort.
Alluvial	SP, SP-SM	6 to 13 BPF	▪ Below the pavement and fill, the borings encountered alluvial soils. ▪ Alluvial soils were composed of poorly graded sand (SP) and poorly graded sand with silt (SP-SM). ▪ Penetration resistance indicates the alluvial sands are loose to medium dense in relative density. ▪ Moisture condition was moist.

*Abbreviations defined in the attached Descriptive Terminology sheets.

**We did not perform gradation analysis on the apparent aggregate base material encountered as part of the pavement section, in accordance with our scope of work. Therefore, we cannot conclusively determine if the encountered material satisfies a particular specification.

***For simplicity in this report, we define existing fill to mean existing, uncontrolled, or undocumented fill.

B.2.b. Cone Penetration Test Sounding

We performed CPT soundings in addition to our SPT soil borings. The Appendix includes CPT Sounding Logs that present the tip resistance, sleeve resistance, pore pressure and correlations based on the data that indicates a soil boring penetration resistance (N_{60}) and soil behavior type (SBT). The SBT does not correlate to soil classification based on grain size distribution or plasticity, and the SBT is not a reliable indicator of existing fill material gradation or extents.

We performed CPT soundings to provide a continuous profile of in-situ conditions that we use to estimate soil behavior properties for our engineering analyses. Refer to the attached Descriptive Terminology Cone Penetration Test in the Appendix for more information.

The results of the soundings indicate a soil profile consistent with findings in our SPT borings. Based on the SBT, the CPT soundings indicate the site is composed of sandy alluvial soils to the termination depth.

B.3. Groundwater

We did not observe groundwater while advancing our SPT borings. However, based on pore water pressure readings from our CPT soundings, we estimate groundwater to be at a depth of about 33 to 34 feet, corresponding to elevations 631 to 631 ½ feet. Project planning should anticipate seasonal and annual fluctuations of groundwater.

B.4. Laboratory Test Results

Table 4 presents the results of our laboratory tests.

Table 4. Laboratory Classification Test Results

Location	Sample Depth (ft)	Classification	Moisture Content (w, %)	Percent Passing a #200 Sieve
ST-01	10	Poorly Graded Sand (SP)	5	2
ST-02	5	FILL: Poorly Graded Sand with Silt (SP-SM)	6	6
ST-03	5	Poorly Graded Sand with Silt (SP-SM)	6	6
ST-04	7 ½	Poorly Graded Sand (SP)	7	3
ST-05	5	Poorly Graded Sand with Silt (SP-SM)	8	8
ST-09	15	Poorly Graded Sand (SP)	5	2
ST-16	15	Poorly Graded Sand (SP)	5	2
ST-24	15	Poorly Graded Sand with Silt (SP-SM)	6	7

C. Recommendations

C.1. Design and Construction Discussion

C.1.a. Introduction

Based on our subsurface exploration, the site is composed of existing pavement materials, existing fill, and alluvial soils. The existing pavement materials were found to be about 1 foot in thickness. Below the pavement materials, a portion of the borings encountered fill that extended to depths of up to 6 ½ feet. Below these materials, the borings encountered alluvial sand soils. Based on strength testing, the soils present at the site are loose to medium dense in relative density.

C.1.b. Building Subgrade Preparation

Site preparation work should include demolition of the existing commercial building. This should include removal of the structure, including footings, slabs, and underground utilities. In addition, the existing pavement should also be removed. Following removal of these materials, and prior to placement of structural fill or footings, the subgrades should be thoroughly surface compacted with a self-propelled vibratory steel-drum compactor.

Following these site preparations, the single-story commercial buildings can be designed for a net allowable bearing pressure of 4,000 pounds per square foot. The multi-story buildings, however, having below grade levels, and having 12 to 15 feet of overburden soil removed will aid in a higher bearing pressure. Furthermore, based on our CPT data, the multi-story buildings with below-grade levels can be designed for a net allowable bearing pressure of up to 7,000 pounds per square foot.

C.1.c. Pavement

Areas that will be receiving new pavement should be prepared by first removing existing pavement material and enough existing fill to allow for placement of new pavement materials. Additionally, if any debris is present in the existing fill, we recommend removing it within 2 feet of the proposed subgrade elevation. Prior to placing aggregate base material, we recommend surface compacting the pavement subgrade to enhance uniformity.

C.2. Site Grading and Subgrade Preparation

C.2.a. Building Demolition

We recommend demolition of the existing commercial building include removal of footings, slabs, foundation walls and underground utilities. These materials will need to be completely removed and the excavation backfilled with compacted soil.

C.2.b. Building Subgrade Excavations

Following building demolition, we also recommend removing existing pavement materials and existing fill below the proposed structures and their oversize areas. Table 5 shows the anticipated excavation depths and bottom elevations for each of the SPT borings.

Table 5. Building Excavation Depths

SPT Boring	Approximate Surface Elevation (ft)	Anticipated Excavation Depth (ft)	Anticipated Bottom Elevation (ft)
ST-01	661.5	4	657 ½
ST-02	663.4	6 ½	657
ST-03	663.1	3	660
ST-04	664.1	1	663
ST-05	663.1	4	659
ST-09	664.2	1	663
ST-16	664.5	1	663 ½
ST-24	665.9	1	665

Excavation depths will vary between the borings. Portions of the excavations may also extend deeper than indicated by the borings. A geotechnical representative should observe the excavations to make the necessary field judgments regarding the suitability of the exposed soils.

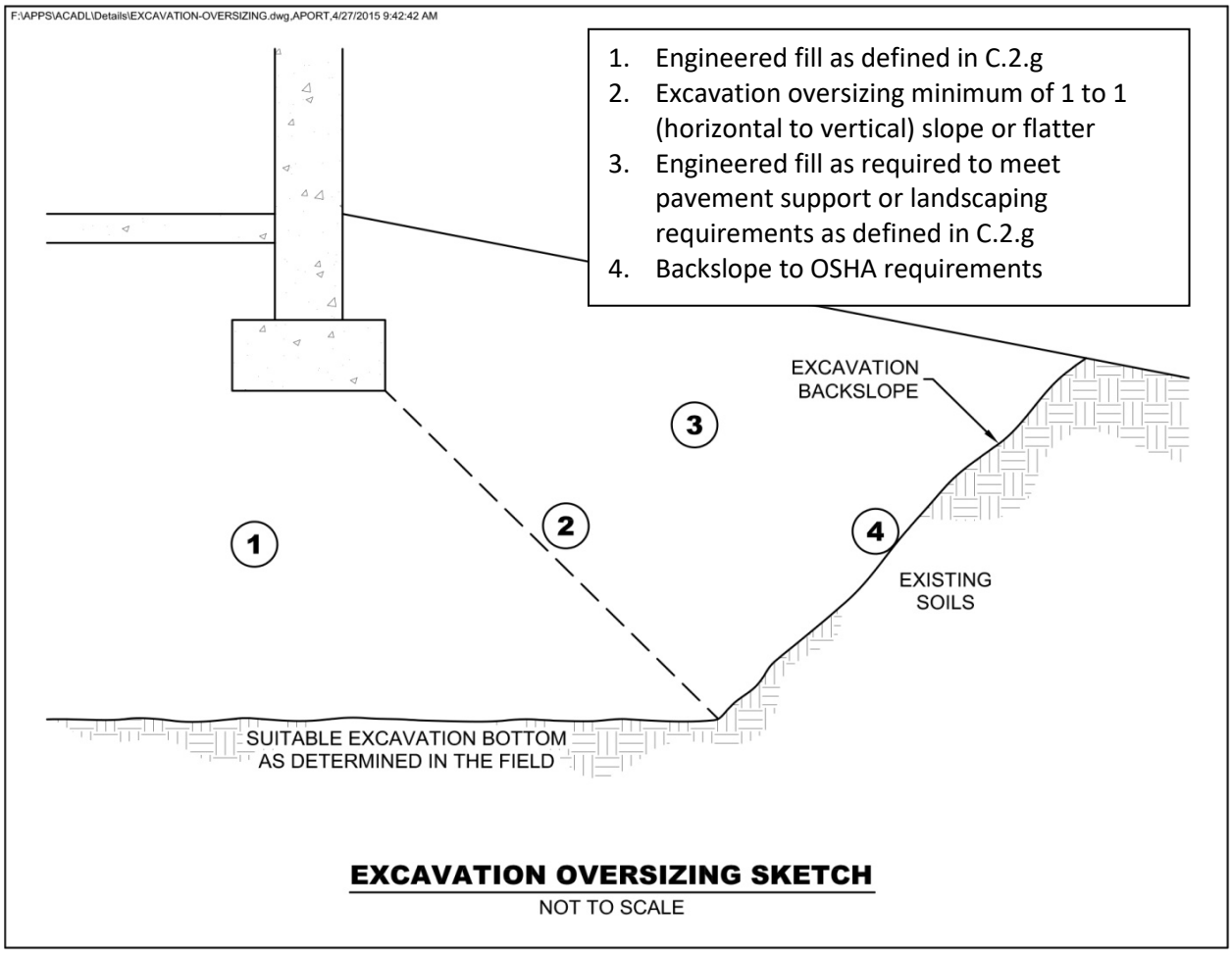
C.2.c. Surface Compaction

Prior to the placement of engineered fill or footings, we recommend surface compacting the exposed soils in the bottoms of the excavations with a minimum of five passes by a large (minimum diameter of 3 1/2 feet), smooth-drum compactor and be compacted to a minimum of 98 percent of the standard Proctor (ASTM D698) optimum density.

C.2.d. Excavation Oversizing

When removing unsuitable materials below structures or pavements, we recommend the excavation extend outward and downward at a slope of 1H:1V (horizontal: vertical) or flatter. See Figure 2 for an illustration of excavation oversizing.

Figure 2. Generalized Illustration of Oversizing



C.2.e. Excavated Slopes

Based on the borings, we anticipate on-site soils in excavations will consist of fill and alluvial sand soils. These soils are typically considered Type C Soil under OSHA (Occupational Safety and Health Administration) guidelines. OSHA guidelines indicate unsupported excavations in Type C soils should have a gradient no steeper than 1.5H:1V. Slopes constructed in this manner may still exhibit surface sloughing. OSHA requires an engineer to evaluate slopes or excavations over 20 feet in depth.

An OSHA-approved qualified person should review the soil classification in the field. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, “Excavations and Trenches.” This document states excavation safety is the responsibility of the contractor. The project specifications should reference these OSHA requirements.

C.2.f. Pavement and Exterior Slab Subgrade Preparation

Areas that will be receiving new pavement should be prepared by first removing existing pavement material and enough existing fill to allow for placement of new pavement materials. Additionally, if any debris is present in the existing fill, we recommend removing it within 2 feet of the proposed subgrade elevation. Prior to placing aggregate base material, we recommend surface compacting the pavement subgrade to enhance uniformity. We recommend performing a proofroll after the aggregate base material is in place, and prior to placing bituminous or concrete pavement. We also recommend having a geotechnical representative observe the proofroll. Areas that fail the proofroll indicate soft or weak areas that will require additional soil correction work to support pavements.

C.2.g. Engineered Fill Materials and Compaction

Table 6 below contains our recommendations for engineered fill materials.

Table 6. Engineered Fill Materials*

Fill Classification	Locations To Be Used	Fill Source and Soil Descriptions	Gradation	Relative Compaction, percent (ASTM D698 – Standard Proctor)
Structural fill	▪ Soil correction backfill ▪ Below foundations ▪ Interior & exterior foundation wall backfill ▪ Below interior & exterior slabs	On-site alluvial sand soils or Imported sand and gravel consisting of GP, GW, SP, SW, SP-SM	100% passing 2-inch sieve <12% passing #200 sieve <2% Organic Content (OC)	98
Pavement Materials	Dense graded base	Imported aggregate	WisDOT Standard Spec 305 Dense Graded Base	98
	Pavement subgrades	On-site alluvial sand soils or Imported sand and gravel consisting of GP, GW, SP, SW, SP-SM, SM	100% passing 2-inch sieve <25% passing #200 sieve <3% OC	95
Non-structural fill	Below landscaped surfaces, where subsidence is not a concern	On-site soils and imported soils	100% passing 6-inch sieve < 10% OC	90

* More select soils comprised of coarse sands with < 5% passing #200 sieve may be needed to accommodate work occurring in periods of wet or freezing weather.

We recommend spreading engineered fill in loose lifts of approximately 12 inches thick. The project documents should specify relative compaction of engineered fill, based on the structure located above the engineered fill, and vertical proximity to that structure.

The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material. Frost should not penetrate under foundations during construction.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

C.3. Spread Footings

Table 7 below contains our recommended parameters for foundation design.

Table 7. Recommended Spread Footing Design Parameters

Item	Description	
	Single-Story Commercial	Multi-Story Mixed Use
Maximum net allowable bearing pressure (psf)	4,000	7,000
Minimum factor of safety for bearing capacity failure	3.0	3.0
Minimum width (inches)	18 for wall 36 for column	24 for wall 48 for column
Minimum embedment below final exterior grade for heated structures (inches)	48	48
Minimum embedment below final exterior grade for unheated structures or for footings not protected from freezing temperatures during construction (inches)	60	60
Total estimated settlement (inches)	Less than 1	1
Differential settlement (inch)	Less than 1/2	1/2

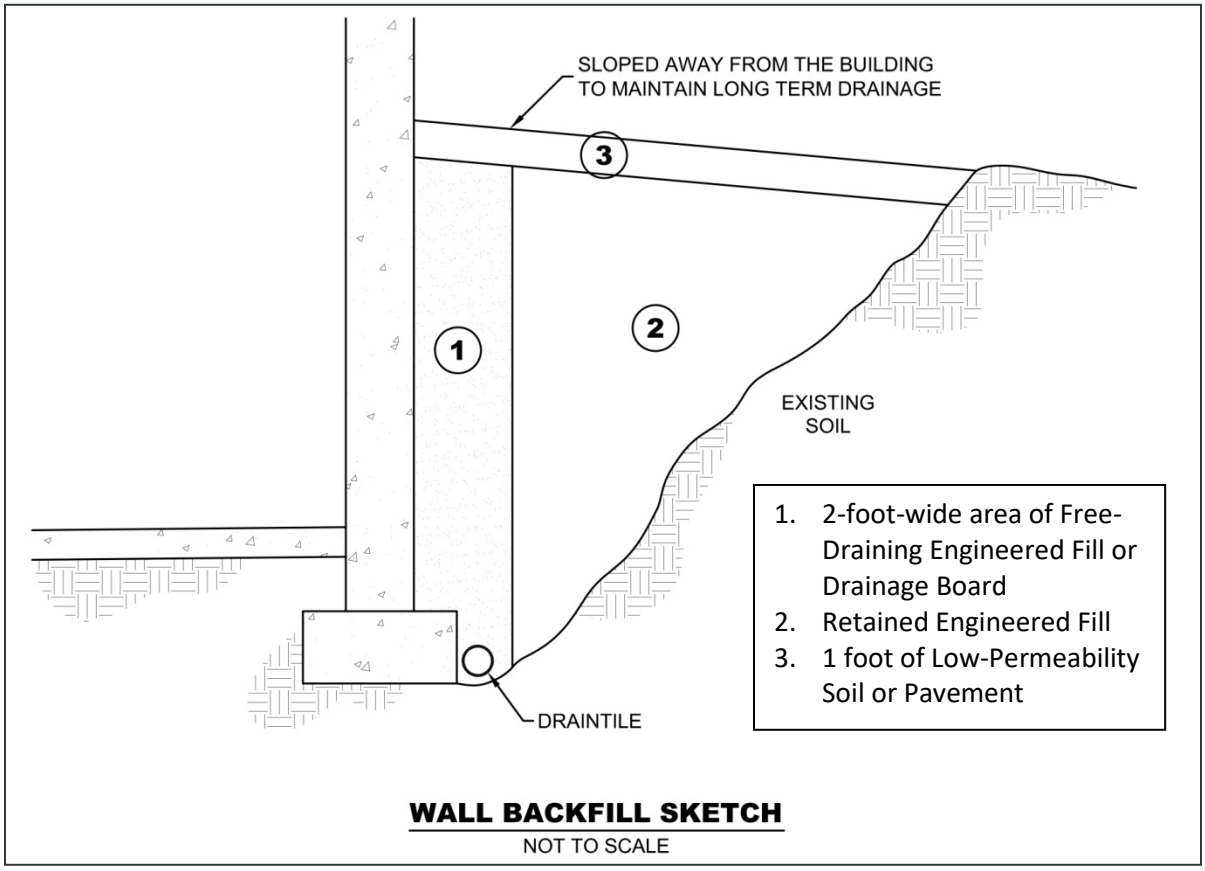
C.4. Below-Grade Walls

C.4.a. Drainage Control

We recommend installing drain tile to remove water behind the below-grade walls, at the location shown in Figure 3. The below-grade wall drainage system should also incorporate free-draining, engineered fill or a drainage board placed against the wall and connected to the drain tile.

Even with the use of free-draining, engineered fill, we recommend general waterproofing of below-grade walls that surround occupied or potentially occupied areas because of the potential cost impacts related to seepage after construction is complete.

Figure 3. Generalized Illustration of Wall Engineered Fill



The materials listed in the sketch should meet the definitions in Section C.2. Low-permeability material can direct water away from the wall, like clay, topsoil, or pavement. The project documents should indicate if the contractor should brace the walls prior to filling and allowable unbalanced fill heights.

As shown in Figure 3, we recommend Zone 2 consist of retained, engineered fill, and this material will control lateral pressures on the wall. However, we are also providing design parameters for using other engineered fill material. If final design uses non-sand material for engineered fill, project planning should account for the following items:

- Other fill material may result in higher lateral pressure on the wall.
- Other fill materials composed of silty or clayey soils may be more difficult to compact.
- Post-construction consolidation of other engineered fill material may result in settlement-related damage to the structures or slabs supported on the engineered fill. Post-construction settlement of other engineered fill material may also cause drainage towards the structure. The magnitude of consolidation could be up to about 3 percent of the wall fill thickness.

C.4.b. Configuring and Resisting Lateral Loads

Table 8 presents our recommended lateral equivalent fluid pressures for wall design of active, at-rest and passive earth pressure conditions. The table also provides recommended wet unit weights and internal friction angles. Designs should also consider the slope of any engineered fill and dead or live loads placed behind the walls within a horizontal distance that is equal to the height of the walls. Our recommended values assume the wall design provides drainage so water cannot accumulate behind the walls. The construction documents should clearly identify what soils the contractor should use for engineered fill of walls.

Table 8. Recommended Below-Grade Wall Design Parameters – Drained Conditions

Retained Soil	Wet Unit Weight (pcf)	Friction Angle (degrees)	Active Lateral Equivalent Fluid Pressure (pcf)	At-Rest Lateral Equivalent Fluid Pressure (pcf)	Passive Lateral Equivalent Fluid Pressure* (pcf)
On-site Sand	120	30	40	60	360

* Based on Rankine model for soils in a region behind the wall extending at least 2 horizontal feet beyond the bottom outer edges of the wall footings and then rising and away from the wall at an angle no steeper than 60 degrees from horizontal.

Sliding resistance between the bottom of the footing and the soil can also resist lateral pressures. We recommend assuming a sliding coefficient equal to 0.36 between the concrete and soil.

The values presented in this section are un-factored.

C.5. Interior Slabs

C.5.a. Subgrade Modulus

The anticipated floor subgrade is expected to consist of compacted structural fill or surface compacted alluvial soils. We recommend using a modulus of subgrade reaction, k, of 200 pounds per square inch per inch of deflection (pci) to design the slabs. If the slab design requires placing 6 inches of compacted crushed aggregate base immediately below the slab, the slab design may increase the k-value by 50 pci. We recommend that the aggregate base materials be free of bituminous. In addition to improving the modulus of subgrade reaction, an aggregate base facilitates construction activities and is less weather sensitive.

C.5.b. Moisture Vapor Protection

Excess transmission of water vapor could cause floor dampness, certain types of floor bonding agents to separate, or mold to form under floor coverings. If project planning includes using floor coverings or coatings, we recommend placing a vapor retarder or vapor barrier immediately beneath the slab. We also recommend consulting with floor covering manufacturers regarding the appropriate type, use and installation of the vapor retarder or barrier to preserve warranty assurances.

C.6. Pavements and Exterior Slabs

C.6.a. Design Sections

Our scope of services for this project did not include laboratory tests on subgrade soils to determine a California Bearing Ratio (CBR) value for pavement design. Based on our experience with similar sandy soils anticipated at the pavement subgrade elevation, we recommend pavement design assume a CBR-value of 10. Similarly, we based the concrete pavement designs on an assumed modulus of subgrade reaction (k) of 200 pci. Table 9 provides recommended pavement sections, based on the soils support and traffic loads.

Table 9. Recommended Bituminous Pavement Sections

Use	Asphalt Pavement		Concrete Pavement	
	Light Duty	Heavy Duty	Light Duty	Heavy Duty
Minimum asphalt thickness (inches)	4	5	---	---
Minimum concrete thickness (inches)	---	---	5	6
Minimum aggregate base thickness (inches)	8	10	6	6

C.6.b. Concrete Pavements

We recommend specifying concrete for pavements that has a minimum 28-day compressive strength of 4,500 psi, and a modulus of rupture (M_r) of at least 650 psi. We also recommend Type I cement meeting the requirements of ASTM International C 150. We recommend specifying 4.5 to 7.5 percent entrained air for exposed concrete to provide resistance to freeze-thaw deterioration. We also recommend using a water/cement ratio of 0.45 or less for concrete exposed to deicers.

C.6.c. Bituminous Pavement Materials

Appropriate mix designs are critical to the performance of flexible pavements. We recommend utilizing hot mix asphalt meeting the specifications of Wisconsin Department of Transportation (WisDOT) Section 460. We recommend utilizing a nominal 12.5 mm gradation for the base course and a nominal 9.5 mm gradation for the surface course as defined in Table 460-1 in Section 460.2.2.3. We recommend the Performance Graded Asphalt cement be a PG 58-28 in the lower and upper layer.

C.6.d. Performance and Maintenance

We based the above pavement designs on a 20-year performance life for bituminous and a 35-year life for concrete. This is the amount of time before we anticipate the pavement will require reconstruction. This performance life assumes routine maintenance, such as seal coating and crack sealing. The actual pavement life will vary depending on variations in weather, traffic conditions and maintenance.

It is common to place the non-wear course of bituminous and then delay placement of wear course. For this situation, we recommend evaluating if the reduced pavement section will have sufficient structure to support construction traffic.

Many conditions affect the overall performance of the exterior slabs and pavements. Some of these conditions include the environment, loading conditions and the level of ongoing maintenance. Regarding bituminous pavements, it is common to have thermal cracking develop within the first few years of placement and continue throughout the life of the pavement. We recommend developing a regular maintenance plan for filling cracks in exterior slabs and pavements to lessen the potential impacts for cold weather distress due to frost heave or warm weather distress due to wetting and softening of the subgrade.

C.7. Utilities

C.7.a. Subgrade Stabilization

Earthwork activities associated with utility installations located inside the building area should adhere to the recommendations in Section C.2.

For exterior utilities, we anticipate the soils at typical invert elevations will be suitable for utility support. However, if construction encounters unfavorable conditions such as soft clay, organic soils or perched water at invert grades, the unsuitable soils may require some additional subcutting and replacement with sand or crushed rock to prepare a proper subgrade for pipe support. Project design and construction should not place utilities within the 1H:1V oversizing of foundations.

C.7.b. Corrosion Potential

Many of the soil borings indicated the site consists of sandy soils. We consider these soils non- to slightly corrosive to metallic conduits. If utilities extend through clay soils, we recommend bedding the utilities in sandy soil free of any clay lumps or constructing the utilities with non-corrosive materials.

C.8. Storm Water

C.8.a. Test Pits

We observed the excavation of three test pits that were extended to depths of approximately 10 feet each below existing grades. We labeled our exploration locations Test Pits, TP-28, TP-29, and TP-30. We visually examined the sidewalls of the test pit and classified the materials brought to the surface by the excavator bucket. We measured strata boundary depths with a tape measure to the nearest inch.

C.8.b. Storm Water Soil Profile Summary

Based on the test pit excavations, the storm water locations are composed of existing pavement materials over alluvial soils. Beneath the pavement, the alluvial soils were initially composed of sandy clay loam (USCS Soil Classification Sandy Lean Clay "CL") and fine-grained loamy sand (USCS Soil Classification Poorly Graded Sand with Silt "SP-SM"). At depth, the test pits encountered alluvial soils composed of fine-grained sand (USCS Soil Classification Poorly Graded Sand "SP").

Groundwater was not observed within the test pit excavations. Seasonal and annual fluctuations of groundwater should be anticipated.

C.8.c. Infiltration Discussion

In general, the alluvial sand soils present at the site are well suited for infiltration of storm water. However, lower infiltration rates should be anticipated in the sandy clay loam near Test Pit TP-28. Infiltration rates for the site are included on the Soil and Site Evaluation – Storm form attached in the Appendix.

Infiltration rates in natural soils are variable based on soil type, moisture content, void space between soil particles, and discontinuities in the soil structure. Discontinuities are not present in disturbed or compacted soils, such as existing fills, because void space between soil particles may have been reduced form compaction efforts, if applicable.

This geotechnical evaluation does not constitute a review of site suitability for storm water infiltration or evaluate the potential impacts, if any, from infiltration of large amounts of storm water.

C.9. Equipment Support

The recommendations included in the report may not be applicable to equipment used for the construction and maintenance of this project. We recommend evaluating subgrade conditions in areas of shoring, scaffolding, cranes, pumps, lifts, and other construction equipment prior to mobilization to determine if the exposed materials are suitable for equipment support or require some form of subgrade improvement. We also recommend project planning consider the effect that loads applied by such equipment may have on structures they bear on or surcharge – including pavements, buried utilities, and below-grade walls. We can assist you in this evaluation.

D. Procedures

D.1. Penetration Test Borings

We drilled the penetration test borings with a track-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples at 2 1/2- or 5-foot intervals in general accordance with ASTM D1586. The boring logs show the actual sample intervals and corresponding depths.

D.2. Cone Penetration Test Soundings

We performed CPT soundings by advancing a 1.75-inch diameter Vertek seismic piezocone with an unequal end area ratio of 0.8. We used a 15-ton track mounted rig to advance the cone into the ground. We performed the soundings in general accordance with ASTM D5778. While advancing the cone, we digitally recorded tip resistance (Q_t), sleeve friction (F_S) and pore pressure (U_2).

D.3. Exploratory Test Pits

Hess Excavation excavated the test pits with a track-mounted excavator, under the direction and observation of our staff. We prepared Test Pit Logs in accordance with the Wisconsin DSPS Technical Standard 1002. Soils excavated in the test pits were logged by visually examining the sidewalls of the test pits and classifying the materials brought to the surface by the bucket. We measured strata boundary depths with a tape measure.

D.4. Exploration Logs

D.4.a. Log of Boring Sheets

The Appendix includes Log of Boring sheets for our penetration test borings. The logs identify and describe the penetrated geologic materials and present the results of penetration resistance and other in-situ tests performed. The logs also present the results of laboratory tests performed on penetration test samples, and groundwater measurements. The Appendix also includes a Fence Diagram intended to provide a summarized cross-sectional view of the soil profile across the site.

We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate.

The boundary depths vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

D.4.b. Cone Penetration Test Sounding Logs

The Appendix also includes CPT Sounding Logs. The CPT sounding logs report the tip resistance (Q_t), sleeve friction (F_s) and pore pressure (U_2) measured by the cone during advancement, as well as the soil behavior type (SBT) inferred from established relationships between tip resistance, sleeve friction and pore pressure. The SBT does not indicate a soil classification based on grain size distribution. Refer to the attached Descriptive Terminology Cone Penetration Test in the Appendix for more information. The CPT logs also report the friction ratio, which calculated by dividing the sleeve friction by the tip resistance.

We inferred strata boundaries, like SBT, from changes in tip resistance, sleeve friction and pore pressure. While cone measurements are continuous with depth, the boundaries are still only approximate, vary away from the sounding locations and may also occur as gradual rather than abrupt transitions.

D.4.c. Log of Test Pit Sheets

The Appendix also includes Log of Test Pit sheets. The logs classify and describe the geologic materials exposed in the sidewalls and bottoms of the pits, present the results of laboratory tests performed on bulk samples obtained from them, and depict groundwater measurements.

D.4.d. Geologic Origins

We assigned geologic origins to the materials shown on the logs and referenced within this report, based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance and other in-situ testing performed for the project, (4) laboratory test results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past.

D.5. Material Classification and Testing

D.5.a. Visual and Manual Classification

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The Appendix includes a chart explaining the classification system we used.

D.5.b. Laboratory Testing

The exploration logs in the Appendix note most of the results of the laboratory tests performed on geologic material samples. The remaining laboratory test results follow the exploration logs. We performed the tests in general accordance with ASTM procedures.

D.6. Groundwater Measurements

The drillers checked for groundwater while advancing the penetration test borings, and again after auger withdrawal. We then filled the boreholes or allowed them to remain open for an extended period of observation, as noted on the boring logs.

We inferred groundwater levels from pore pressure measurements made during advancement of the piezocone.

E. Qualifications

E.1. Variations in Subsurface Conditions

E.1.a. Material Strata

We developed our evaluation, analyses, and recommendations from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation, and thickness, away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may reevaluate our recommendations. Such variations could increase construction costs, and we recommend including a contingency to accommodate them.

E.1.b. Groundwater Levels

We made groundwater measurements under the conditions reported herein and shown on the exploration logs and interpreted in the text of this report.

Note that the observation periods were short, and project planning can expect groundwater levels to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

E.2. Continuity of Professional Responsibility

E.2.a. Plan Review

We based this report on a limited amount of information, and we made several assumptions to help us develop our recommendations. We should be retained to review the geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

E.2.b. Construction Observations and Testing

We recommend retaining us to perform the required observations and testing during construction as part of the ongoing geotechnical evaluation. This will allow us to correlate the subsurface conditions exposed during construction with those encountered by the borings and provide professional continuity from the design phase to the construction phase. If we do not perform observations and testing during construction, it becomes the responsibility of others to validate the assumption made during the preparation of this report and to accept the construction-related geotechnical engineer-of-record responsibilities.

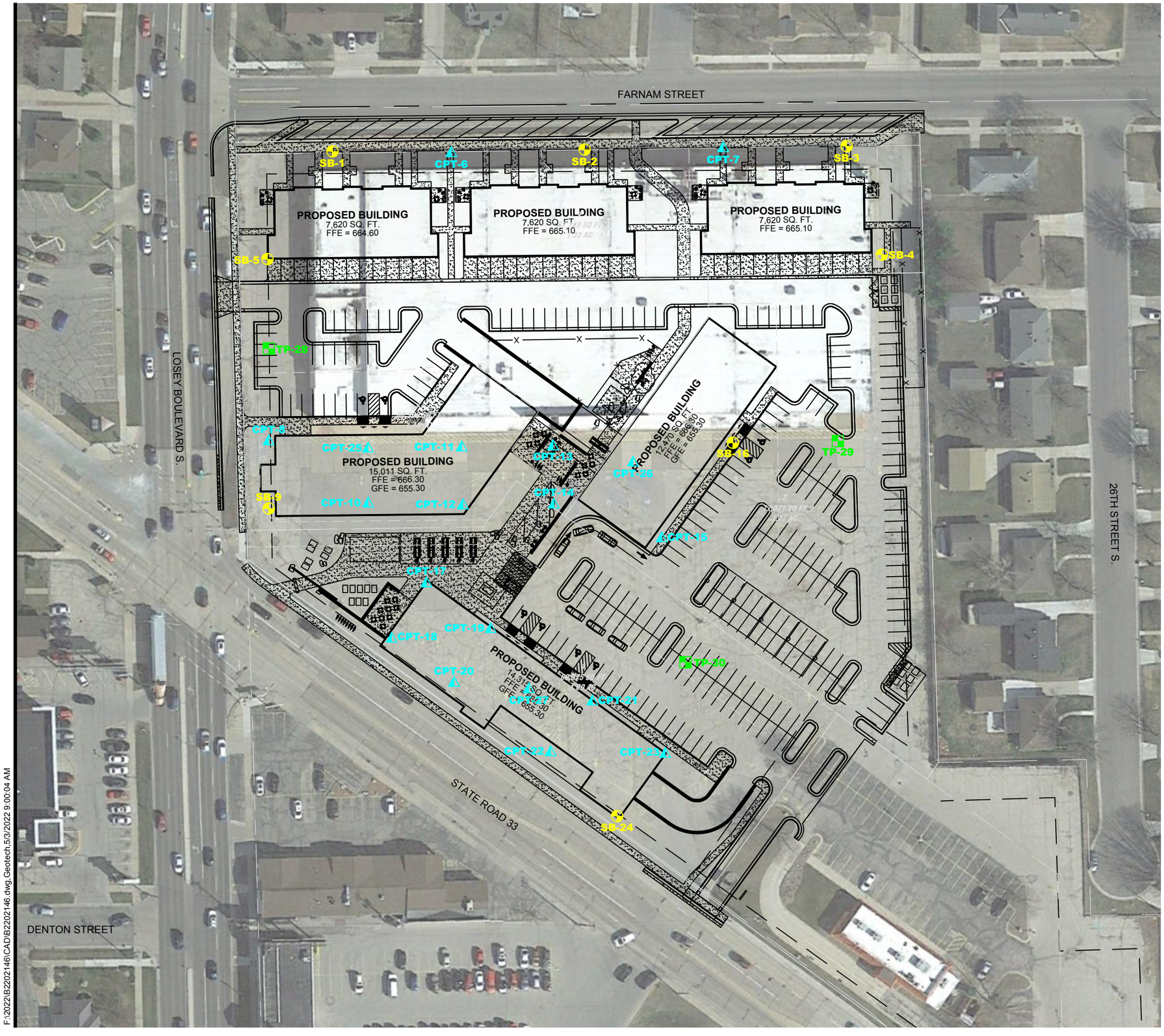
E.3. Use of Report

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

E.4. Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix



DENOTES APPROXIMATE LOCATION OF STANDARD PENETRATION TEST BORING

DENOTES APPROXIMATE LOCATION OF CPT SOUNDING

DENOTES APPROXIMATE LOCATION OF TEST PIT

40' 0 80'

SCALE: 1"= 80'

F:\2022\B2202146\CAD\B2202146.dwg,Geotech,5/3/2022 9:00:04 AM

BRAUN INTERTEC
The Science You Build On.
11001 Hampshire Avenue S
Minneapolis, MN 55438
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braunintertec.com

Drawing Information

Project No:	B2202146
Drawing No:	B2202146
Drawn By:	JAG
Date Drawn:	3/15/22
Checked By:	BW
Last Modified:	5/3/22

Project Information

Kmart Redevelopment Project

2415 State Road

La Crosse, Wisconsin

Soil Boring Location Sketch

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2202146
Geotechnical Evaluation
Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

BORING: **ST-01**
LOCATION: See attached sketch
NORTHING: EASTING:

DRILLER:	Subcontractor	LOGGED BY:	B. Wright	START DATE:	03/31/22	END DATE:	03/31/22
SURFACE ELEVATION:	661.5 ft	RIG:	Subcontractor	METHOD:	3 1/4" HSA	SURFACING:	Pavement	WEATHER:	Overcast

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
660.6		PAVEMENT, 2 inches of bituminous over 9 inches of apparent aggregate base					
0.9		FILL: POORLY GRADED SAND with SILT (SP-SM), fine-grained, brown, moist		5-4-4 (8)			
657.5							
4.0		POORLY GRADED SAND (SP), fine-grained, brown to light brown, moist, loose to medium dense (ALLUVIUM)	5	4-5-6 (11)			
				4-4-4 (8)			
			10	4-3-5 (8)		5	P200=2%
				3-3-5 (8)			
			15	3-4-6 (10)			
			20	3-4-6 (10)			
640.5							
21.0		END OF BORING Boring then grouted					Water not observed while drilling.
			25				
			30				
			35				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2202146
Geotechnical Evaluation
Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

BORING: **ST-02**

LOCATION: See attached sketch

NORTHING: | EASTING:

DRILLER:	Subcontractor	LOGGED BY:	B. Wright	START DATE:	03/31/22	END DATE:	03/31/22
SURFACE ELEVATION:	663.4 ft	RIG:	Subcontractor	METHOD:	3 1/4" HSA	SURFACING:	Pavement	WEATHER:	Overcast

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
662.5		PAVEMENT, 2 inches of bituminous over 9 inches of apparent aggregate base					
0.9		FILL: SILTY SAND (SM), fine-grained, trace bituminous debris, dark brown to brown, moist		15-10-12 (22)			
			5	5-7-9 (16)		6	P200=6%
656.9							
6.5		POORLY GRADED SAND (SP), fine-grained, brown to light brown, moist, loose (ALLUVIUM)		2-3-4 (7)			
			10	3-4-4 (8)			
				4-4-4 (8)			
			15	4-4-4 (8)			
			20	3-4-6 (10)			
642.4							
21.0		END OF BORING Boring then grouted					Water not observed while drilling.
			25				
			30				
			35				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2202146
Geotechnical Evaluation
Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

BORING: **ST-03**
LOCATION: See attached sketch
NORTHING: EASTING:
DRILLER: Subcontractor | LOGGED BY: B. Wright | START DATE: 03/31/22 | END DATE: 03/31/22
SURFACE ELEVATION: 663.1 ft | RIG: Subcontractor | METHOD: 3 1/4" HSA | SURFACING: Pavement | WEATHER: Overcast

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
662.2		PAVEMENT, 2 inches of bituminous over 9 inches of apparent aggregate base					
0.9		FILL: POORLY GRADED SAND (SP), fine-grained, trace Gravel, light brown, moist		7-7-7 (14)			
660.1		POORLY GRADED SAND with SILT (SP-SM), fine-grained, brown to light brown, moist, loose (ALLUVIUM)		5-6-3 (9)		6	P200=6%
3.0			5				
656.6		POORLY GRADED SAND (SP), fine-grained, light brown, moist, loose (ALLUVIUM)		3-3-3 (6)			
6.5				3-4-3 (7)			
			10	3-3-5 (8)			
				2-3-4 (7)			
			15				
				4-4-5 (9)			
642.1			20				
21.0		END OF BORING Boring then grouted					Water not observed while drilling.
			25				
			30				
			35				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2202146
Geotechnical Evaluation
Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

BORING: **ST-04**

LOCATION: See attached sketch

NORTHING: | EASTING:

DRILLER:	Subcontractor	LOGGED BY:	B. Wright	START DATE:	03/31/22	END DATE:	03/31/22
SURFACE ELEVATION:	664.1 ft	RIG:	Subcontractor	METHOD:	3 1/4" HSA	SURFACING:	Pavement	WEATHER:	Overcast

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
663.2		PAVEMENT, 2 inches of bituminous over 9 inches of apparent aggregate base					
0.9		POORLY GRADED SAND (SP), fine-grained, brown to light brown, moist, loose to medium dense (ALLUVIUM)		4-4-4 (8)			
				3-3-4 (7)			
				4-4-4 (8)		7	P200=3%
				4-4-4 (8)			
				4-4-5 (9)			
				4-5-7 (12)			
				3-4-6 (10)			
643.1							
21.0		END OF BORING Boring then grouted					Water not observed while drilling.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2202146
Geotechnical Evaluation
Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

BORING: **ST-05**

LOCATION: See attached sketch

NORTHING: | EASTING:

DRILLER:	Subcontractor	LOGGED BY:	B. Wright	START DATE:	03/31/22	END DATE:	03/31/22
SURFACE ELEVATION:	663.1 ft	RIG:	Subcontractor	METHOD:	3 1/4" HSA	SURFACING:	Pavement	WEATHER:	Overcast

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
662.4		PAVEMENT, 2 inches over 7 inches of apparent aggregate base					
0.8		FILL: SILTY SAND (SM), fine-grained, dark brown, moist		4-4-4 (8)			
659.1							
4.0		POORLY GRADED SAND with SILT (SP-SM), fine-grained, brown, moist, medium dense (ALLUVIUM)	5	4-5-6 (11)		8	P200=8%
656.6							
6.5		POORLY GRADED SAND (SP), fine-grained, brown to light brown, moist, loose (ALLUVIUM)		4-3-4 (7)			
			10	3-3-4 (7)			
				3-4-5 (9)			
			15	3-4-5 (9)			
			20	4-5-5 (10)			
642.1							
21.0		END OF BORING Boring then grouted					Water not observed while drilling.
			25				
			30				
			35				

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2202146
Geotechnical Evaluation
Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

BORING: **ST-09**
LOCATION: See attached sketch
NORTHING: EASTING:

DRILLER:	Subcontractor	LOGGED BY:	B. Wright	START DATE:	03/31/22	END DATE:	03/31/22
SURFACE ELEVATION:	664.2 ft	RIG:	Subcontractor	METHOD:	3 1/4" HSA	SURFACING:	Pavement	WEATHER:	Overcast

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
663.3		PAVEMENT, 2 inches of bituminous over 9 inches of apparent aggregate base					
0.9		POORLY GRADED SAND (SP), fine-grained, brown to light brown, moist, loose to medium dense (ALLUVIUM)		5-4-3 (7)			
			5	4-4-5 (9)			
				3-3-3 (6)			
			10	4-4-4 (8)			
				4-4-4 (8)			
			15	3-4-5 (9)		5	P200=2%
			20	3-3-3 (6)			
			25	3-4-6 (10)			
			30	5-5-6 (11)			
633.2							
31.0		END OF BORING Boring then grouted	35				Water not observed while drilling.

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2202146
Geotechnical Evaluation
Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

BORING: **ST-16**

LOCATION: See attached sketch

NORTHING: | EASTING:

DRILLER:	Subcontractor	LOGGED BY:	B. Wright	START DATE:	03/31/22	END DATE:	03/31/22
SURFACE ELEVATION:	664.5 ft	RIG:	Subcontractor	METHOD:	3 1/4" HSA	SURFACING:	Pavement	WEATHER:	Overcast

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
663.6		PAVEMENT, 5 inches of concrete over 6 inches of apparent aggregate base					
0.9		POORLY GRADED SAND (SP), fine-grained, brown to light brown, moist, loose to medium dense (ALLUVIUM)		4-5-5 (10)			
			5	5-4-5 (9)			
				4-4-5 (9)			
			10	3-4-3 (7)			
				5-6-6 (12)			
			15	4-4-4 (8)		5	P200=2%
			20	4-5-6 (11)			
			25	3-4-4 (8)			
			30	6-6-7 (13)			
633.5							
31.0		END OF BORING Boring then grouted	35				Water not observed while drilling.

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The Science You Build On.

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2202146
Geotechnical Evaluation
Copper Rocks Development
2415 State Road
La Crosse, Wisconsin

BORING: **ST-24**
LOCATION: See attached sketch
NORTHING: EASTING:

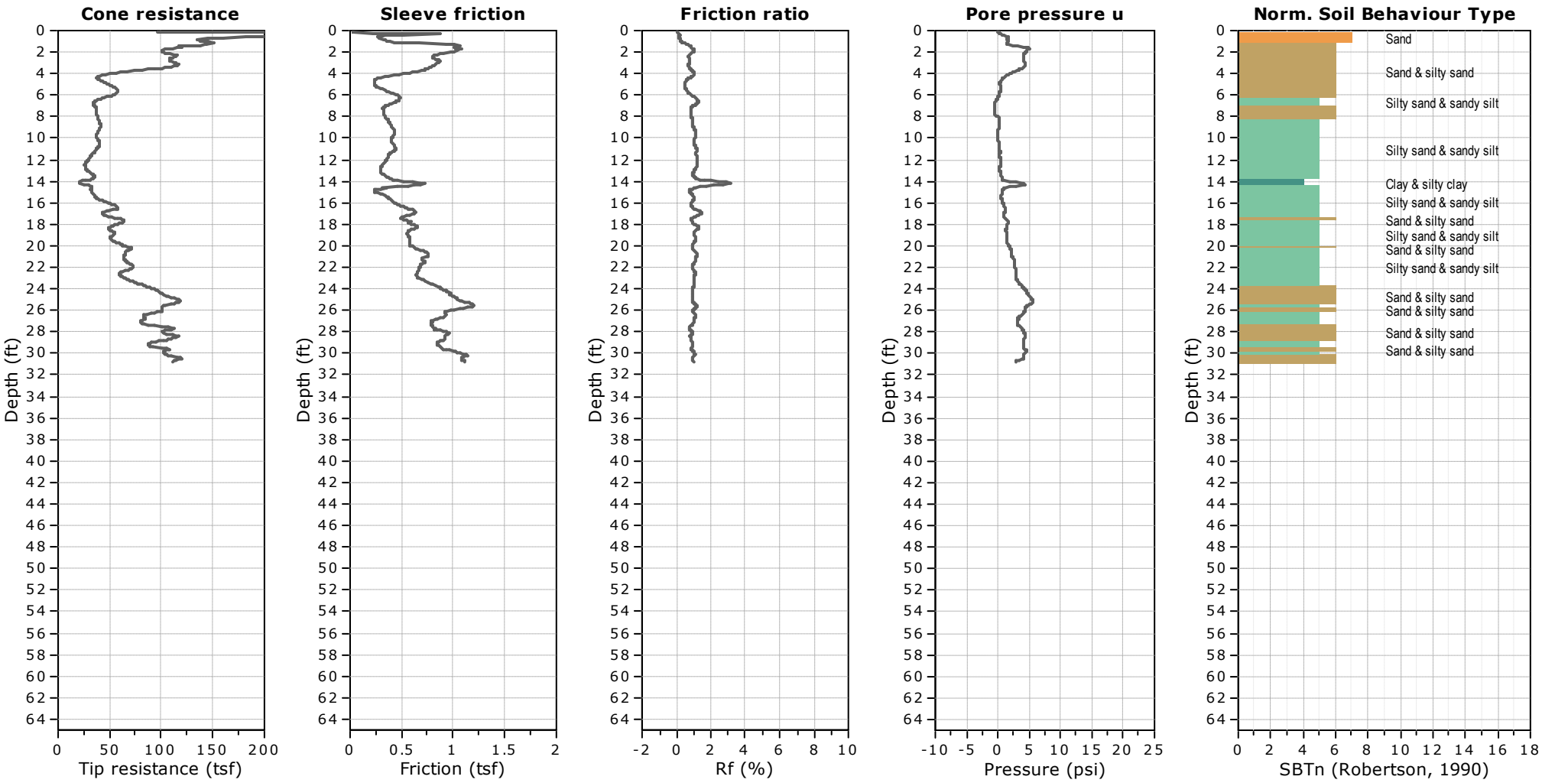
DRILLER:	Subcontractor	LOGGED BY:	B. Wright	START DATE:	03/31/22	END DATE:	03/31/22
SURFACE ELEVATION:	665.9 ft	RIG:	Subcontractor	METHOD:	3 1/4" HSA	SURFACING:	Pavement	WEATHER:	Overcast

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
665.0		PAVEMENT, 2 inches of bituminous over 9 inches of apparent aggregate base					
0.9		POORLY GRADED SAND with SILT (SP-SM), fine-grained, brown, moist, medium dense (ALLUVIUM)		6-5-7 (12)			
662.9		POORLY GRADED SAND (SP), fine-grained, brown to light brown, moist, loose to medium dense (ALLUVIUM)	5	4-4-4 (8)			
3.0				3-3-4 (7)			
			10	3-4-5 (9)			
651.9				3-4-3 (7)			
14.0		POORLY GRADED SAND with SILT (SP-SM), fine-grained, light brown, moist, loose (ALLUVIUM)	15	3-4-5 (9)		6	P200=7%
647.9							
18.0		POORLY GRADED SAND (SP), fine-grained, light brown, moist, loose to medium dense (ALLUVIUM)	20	5-5-5 (10)			
			25	5-5-6 (11)			
			30	6-4-5 (9)			
634.9							
31.0		END OF BORING Boring then grouted	35				Water not observed while drilling.

Braun Intertec Corporation
11001 Hampshire Avenue S
Minneapolis, MN 55438
952.995.2000

CPT: CPT-06
Total depth: 30.77 ft, Date: 4/8/2022
Surface Elevation: 662.30 ft
Coords: N 126408.696, E 453756.315
Cone Type: 200727
Cone Operator: Belch

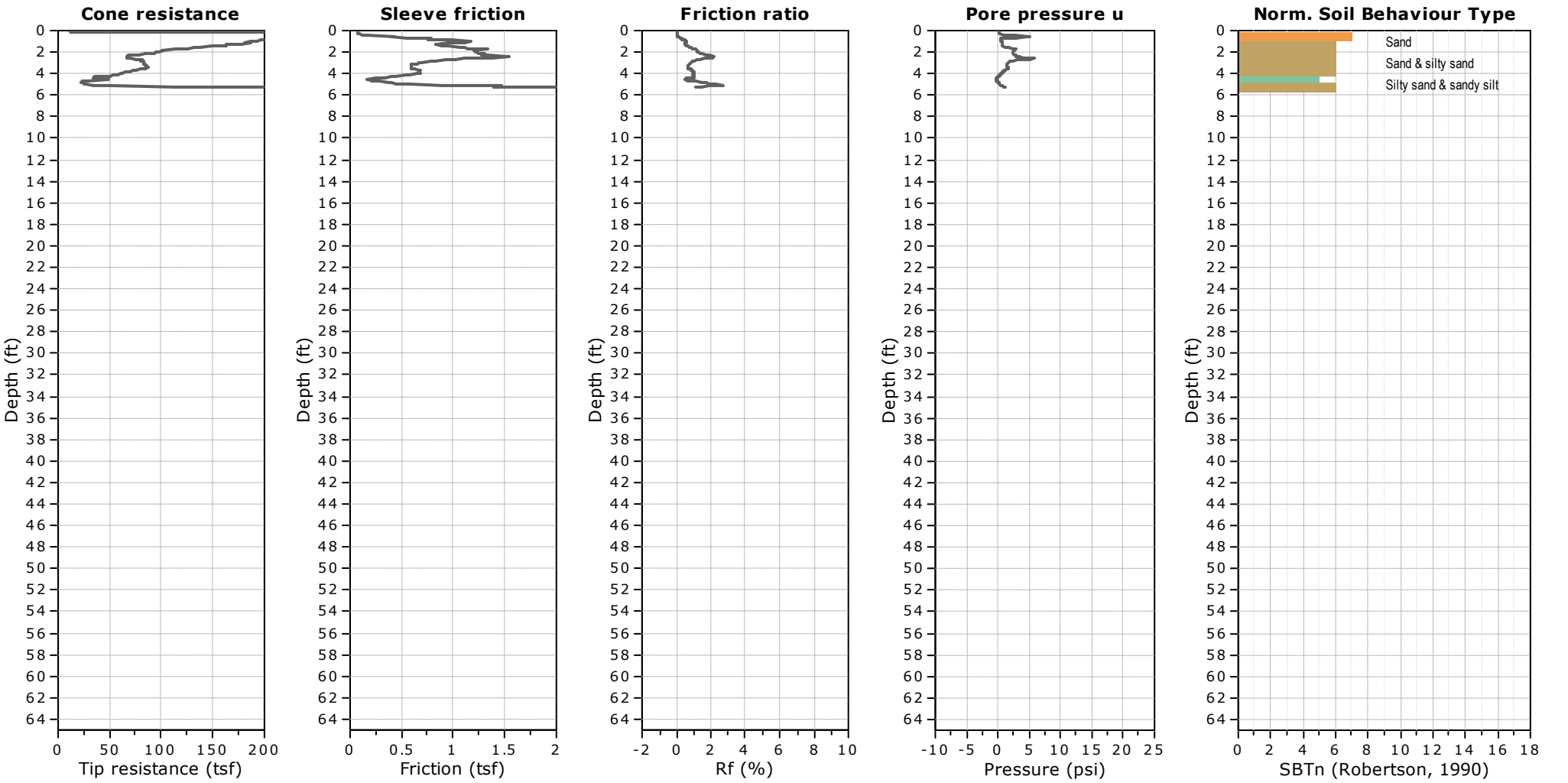
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



Braun Intertec Corporation
11001 Hampshire Avenue S
Minneapolis, MN 55438
952.995.2000

CPT: CPT-07
Total depth: 5.31 ft, Date: 4/8/2022
Surface Elevation: 664.30 ft
Coords: N 126412.690, E 453977.161
Cone Type: 200727
Cone Operator: Belch

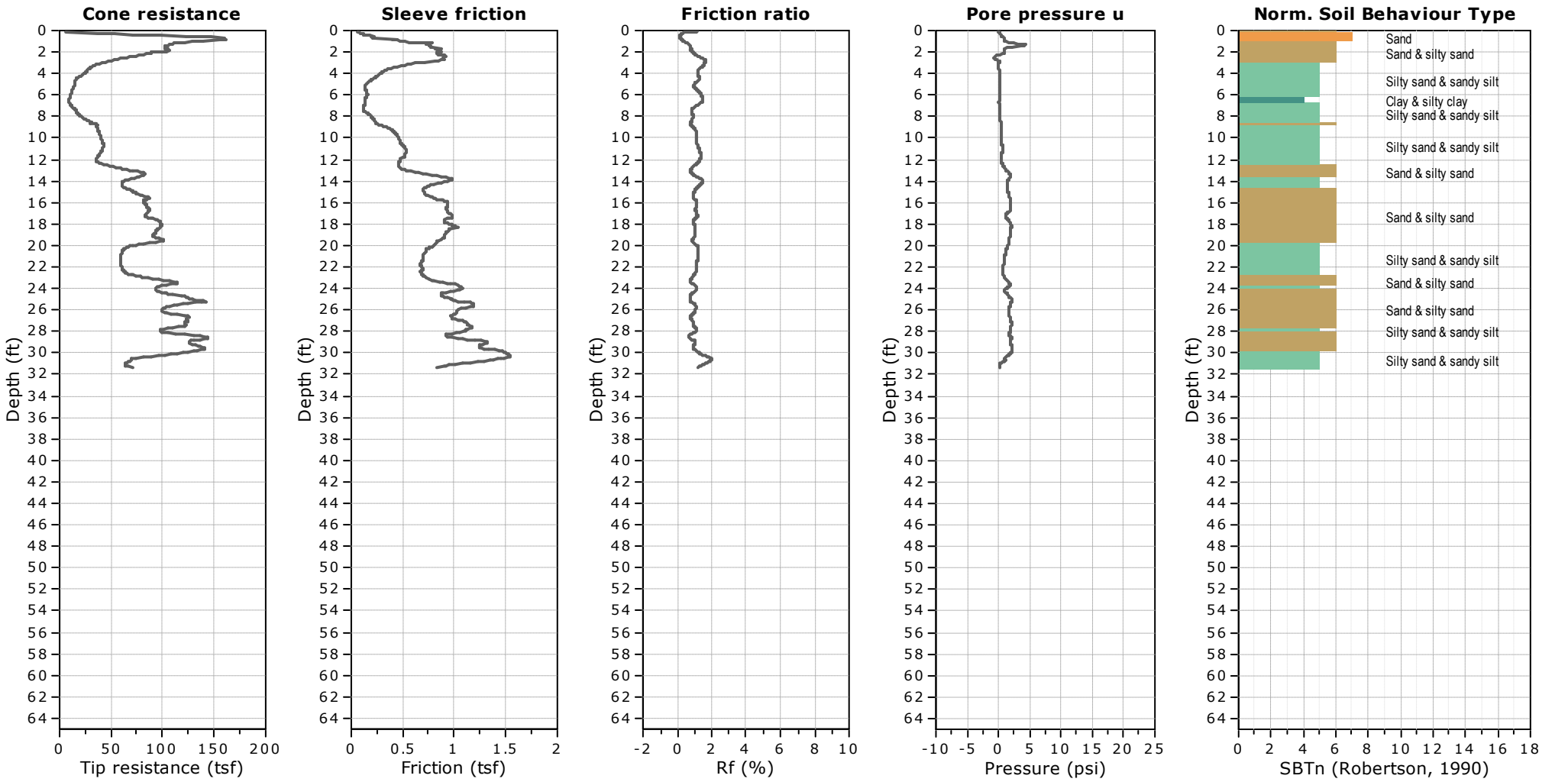
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-08
Total depth: 31.30 ft, Date: 4/8/2022
Surface Elevation: 663.90 ft
Coords: N 126174.571, E 453607.932
Cone Type: 200726
Cone Operator: Belch

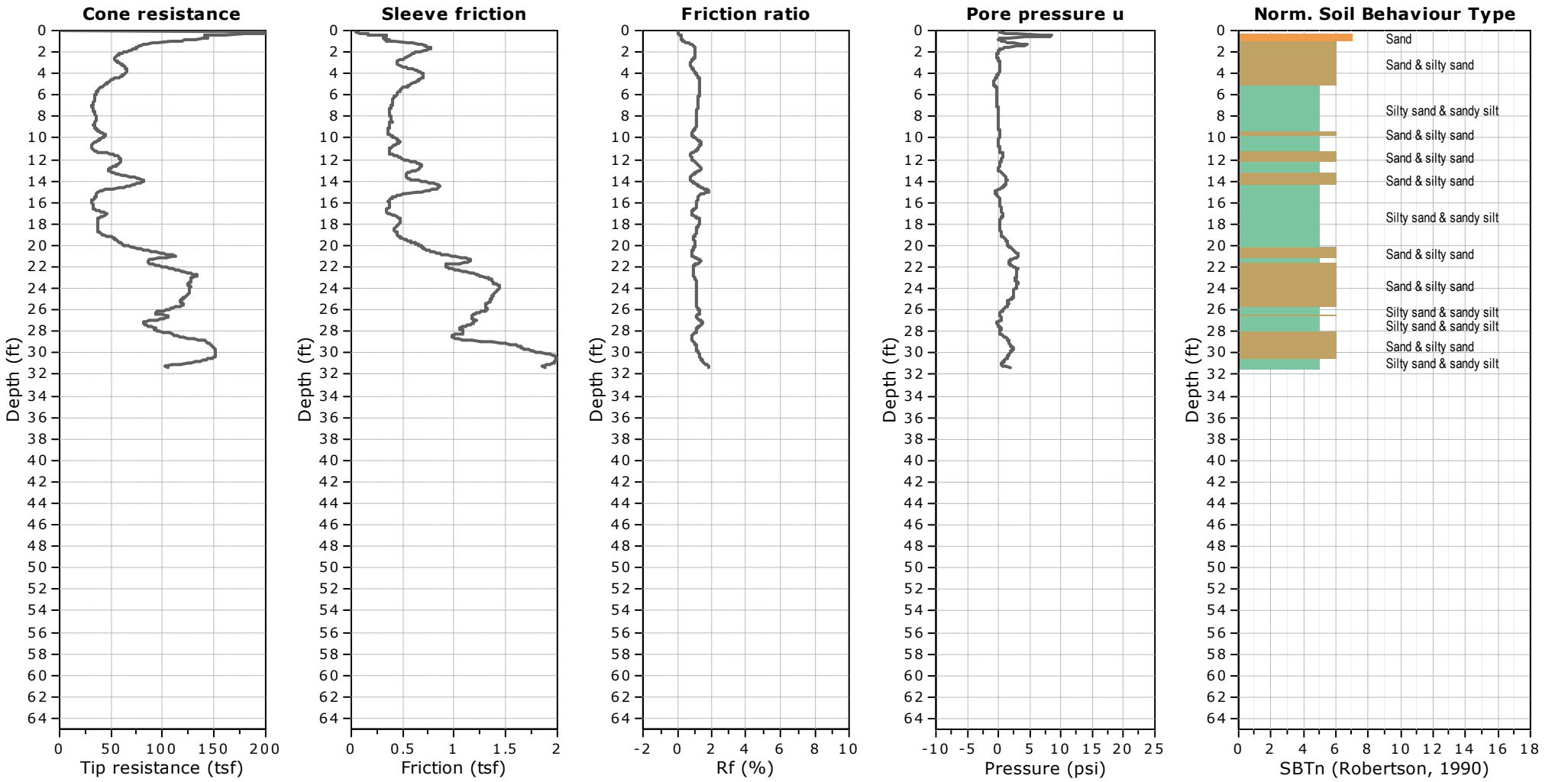
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-10
Total depth: 31.30 ft, Date: 4/8/2022
Surface Elevation: 663.73 ft
Coords: N 126124.095, E 453688.823
Cone Type: 200727
Cone Operator: Belch

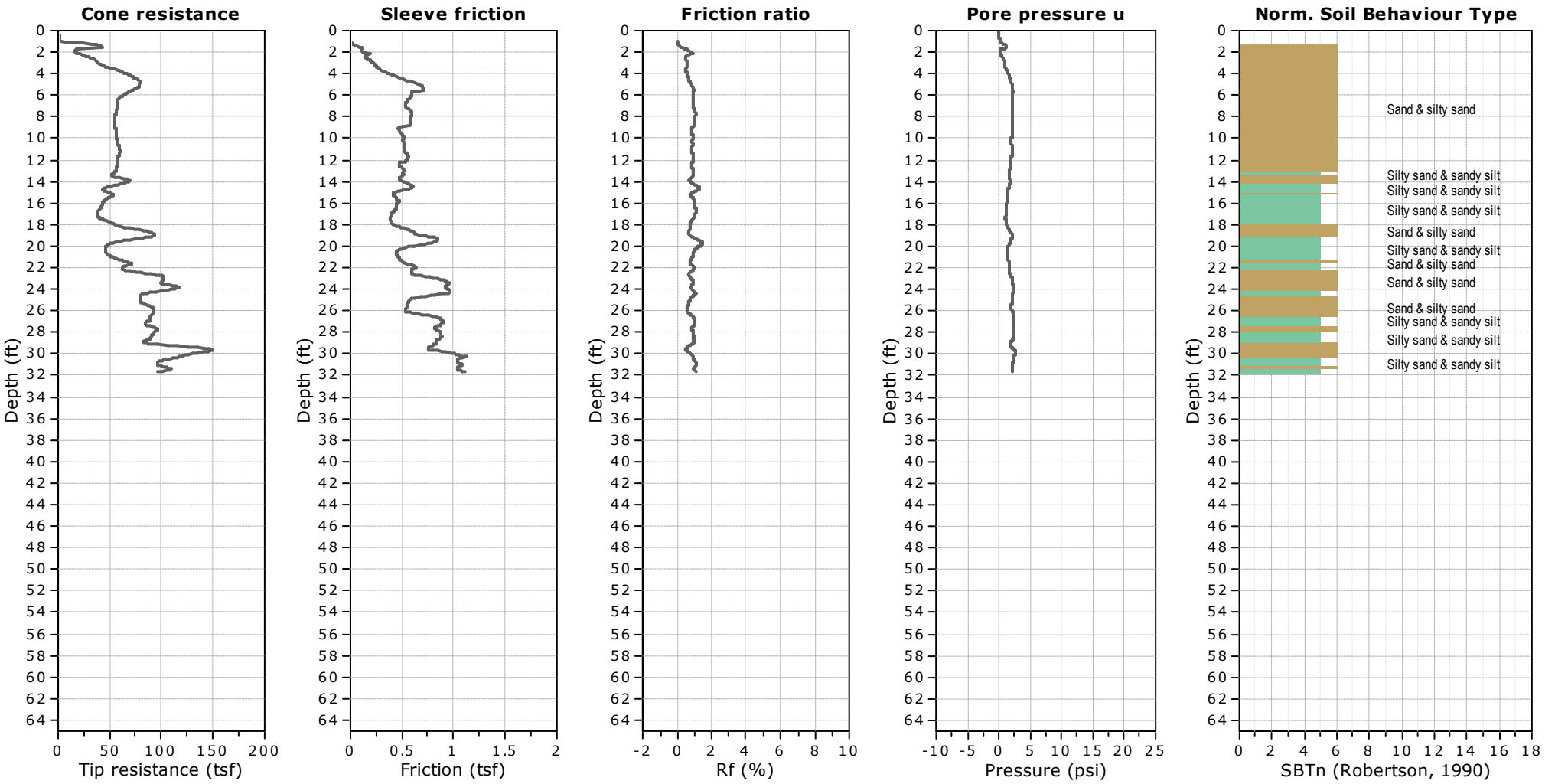
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-11
Total depth: 31.69 ft, Date: 4/9/2022
Surface Elevation: 664.48 ft
Coords: N 126169.688, E 453764.767
Cone Type: 200724
Cone Operator: Belch

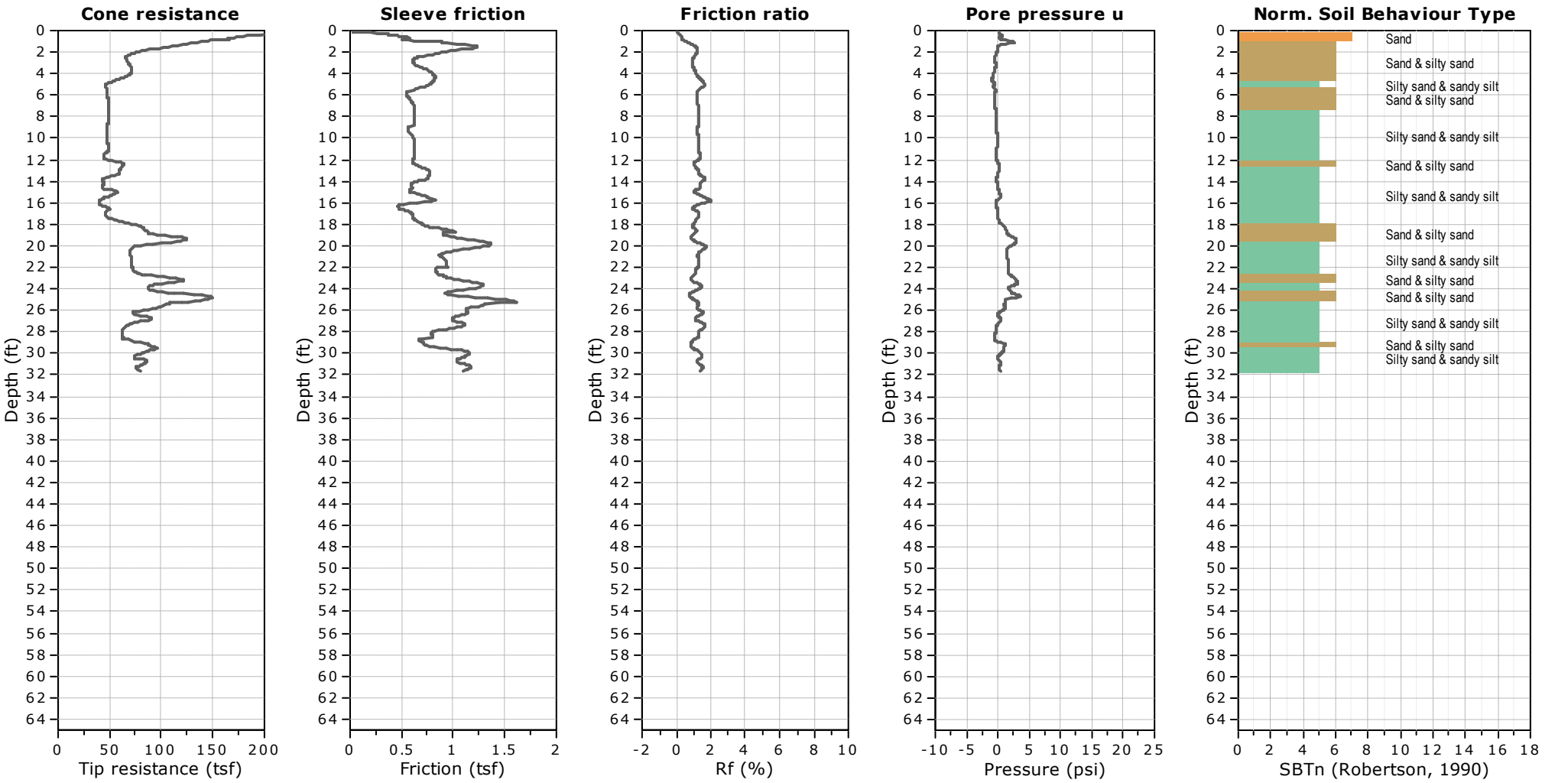
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-12
Total depth: 31.63 ft, Date: 4/8/2022
Surface Elevation: 663.81 ft
Coords: N 126122.632, E 453765.658
Cone Type: 200724
Cone Operator: Belch

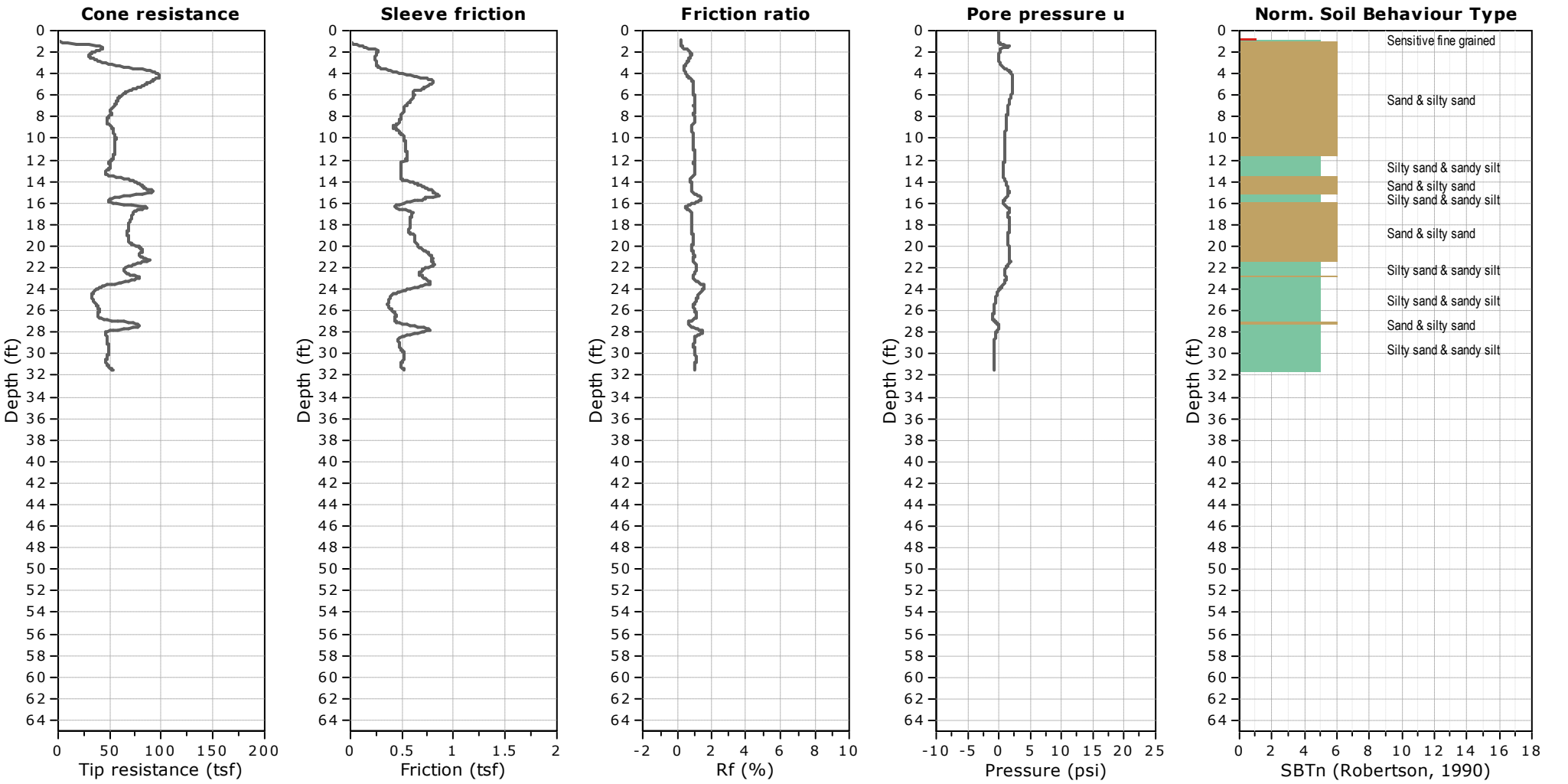
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-13
Total depth: 31.56 ft, Date: 4/9/2022
Surface Elevation: 664.50 ft
Coords: N 126170.618, E 453838.885
Cone Type: 200724
Cone Operator: Belch

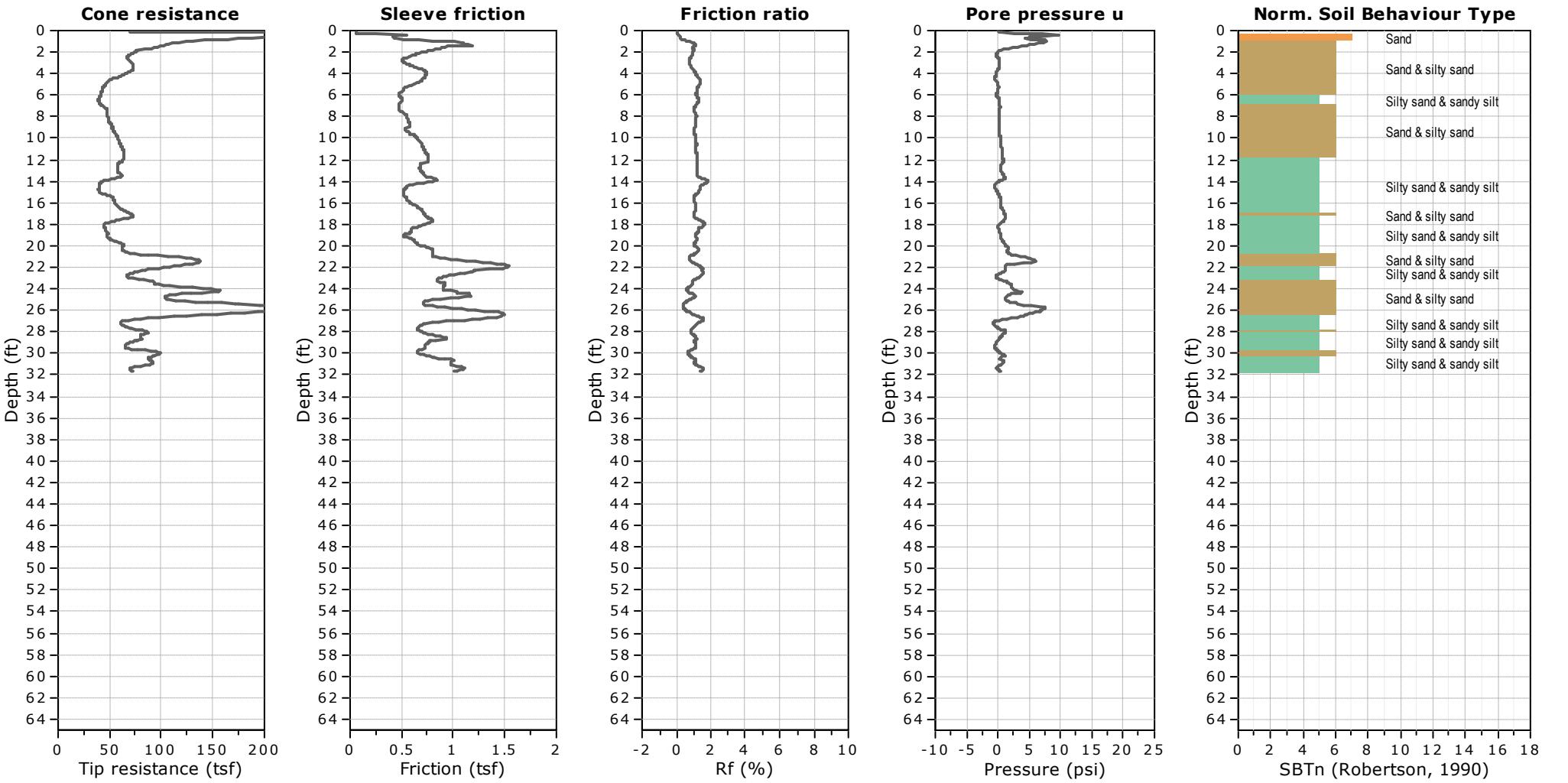
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-14
Total depth: 31.69 ft, Date: 4/8/2022
Surface Elevation: 663.72 ft
Coords: N 126123.229, E 453839.647
Cone Type: 200726
Cone Operator: Belch

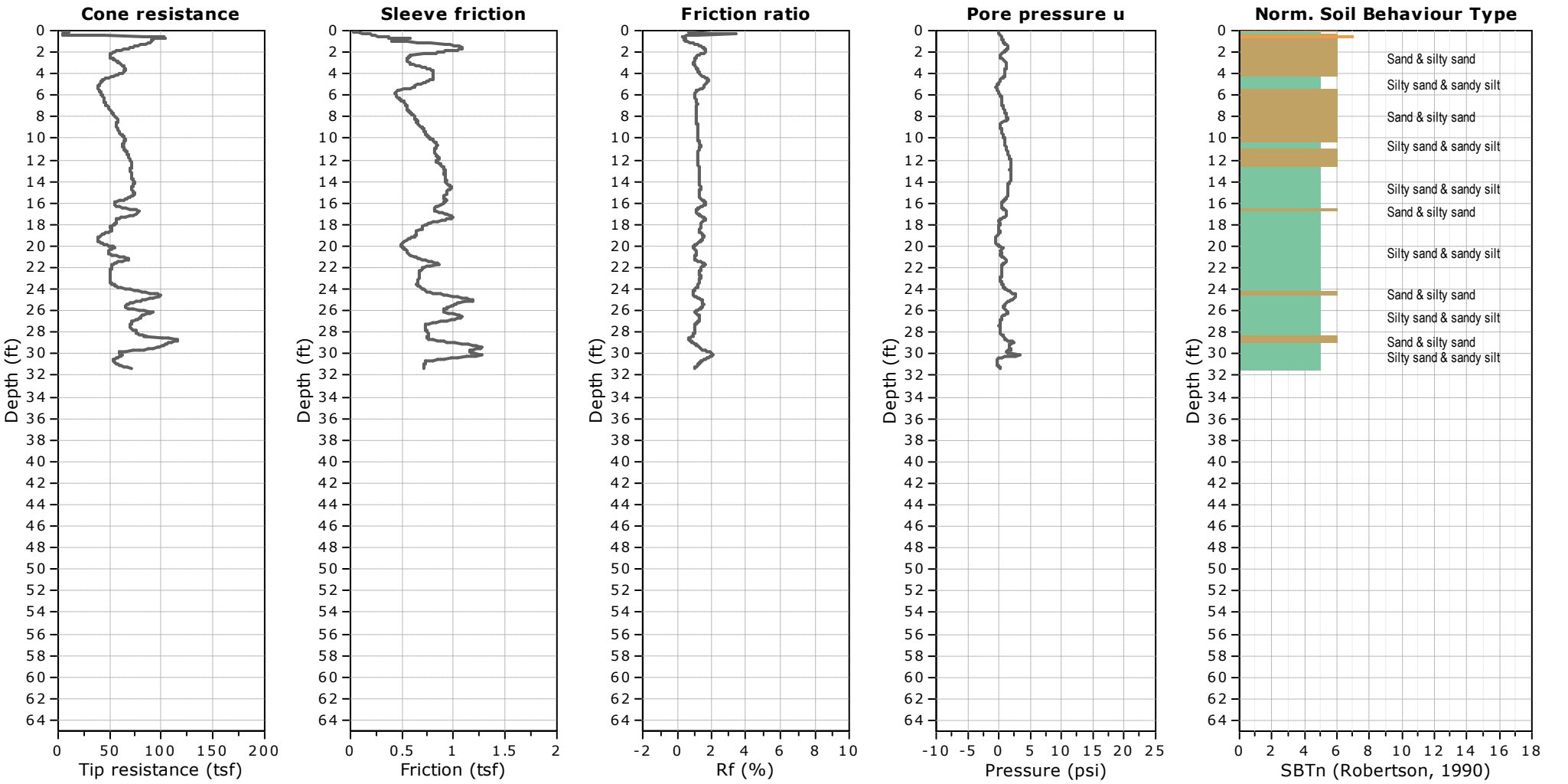
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-15
Total depth: 31.30 ft, Date: 4/8/2022
Surface Elevation: 663.42 ft
Coords: N 126095.902, E 453927.326
Cone Type: 200727
Cone Operator: Belch

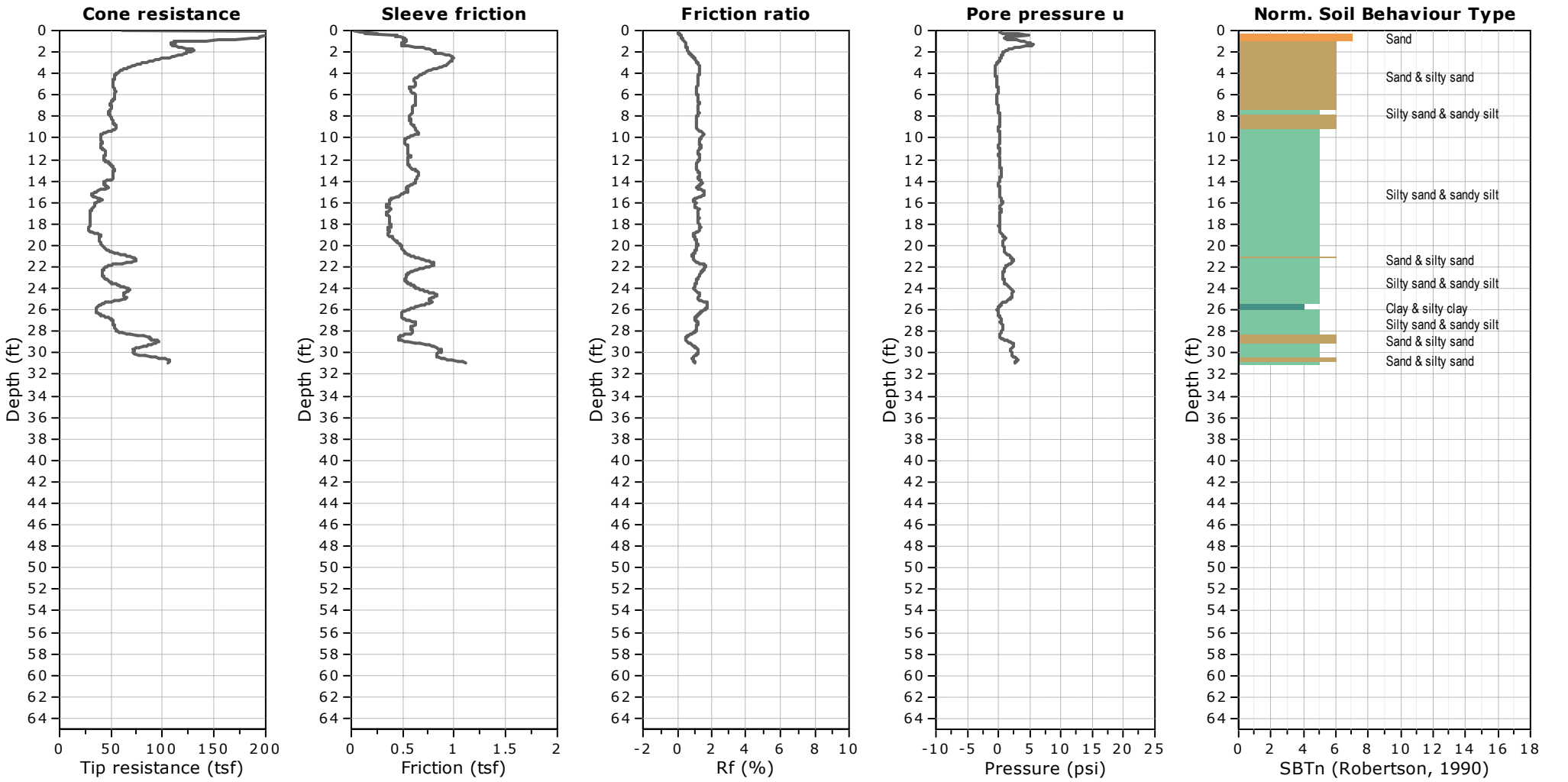
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-17
Total depth: 30.91 ft, Date: 4/8/2022
Surface Elevation: 663.85 ft
Coords: N 126059.291, E 453736.160
Cone Type: 200724
Cone Operator: Belch

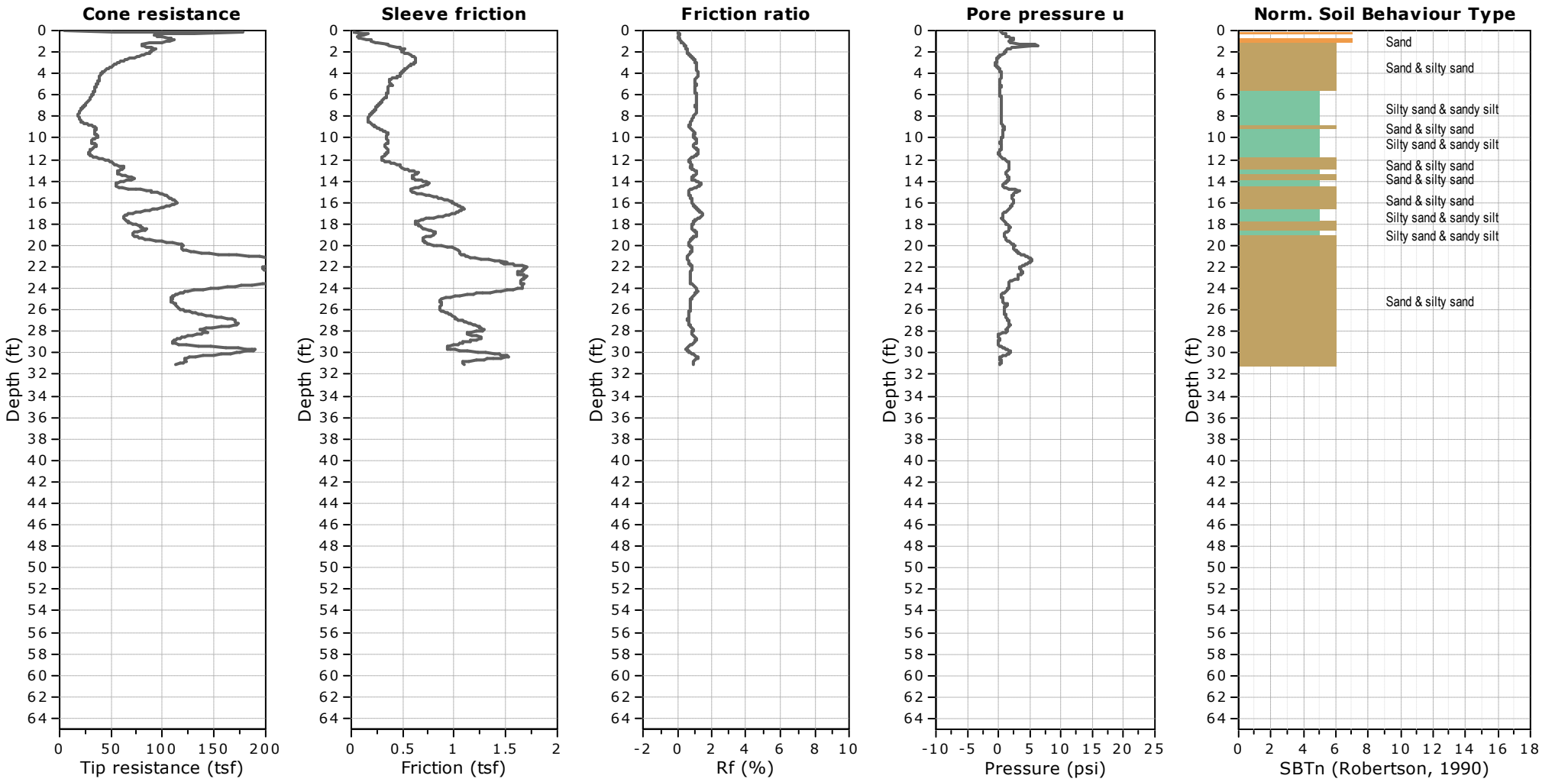
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-18
Total depth: 31.04 ft, Date: 4/8/2022
Surface Elevation: 664.98 ft
Coords: N 126014.262, E 453707.785
Cone Type: 200727
Cone Operator: Belch

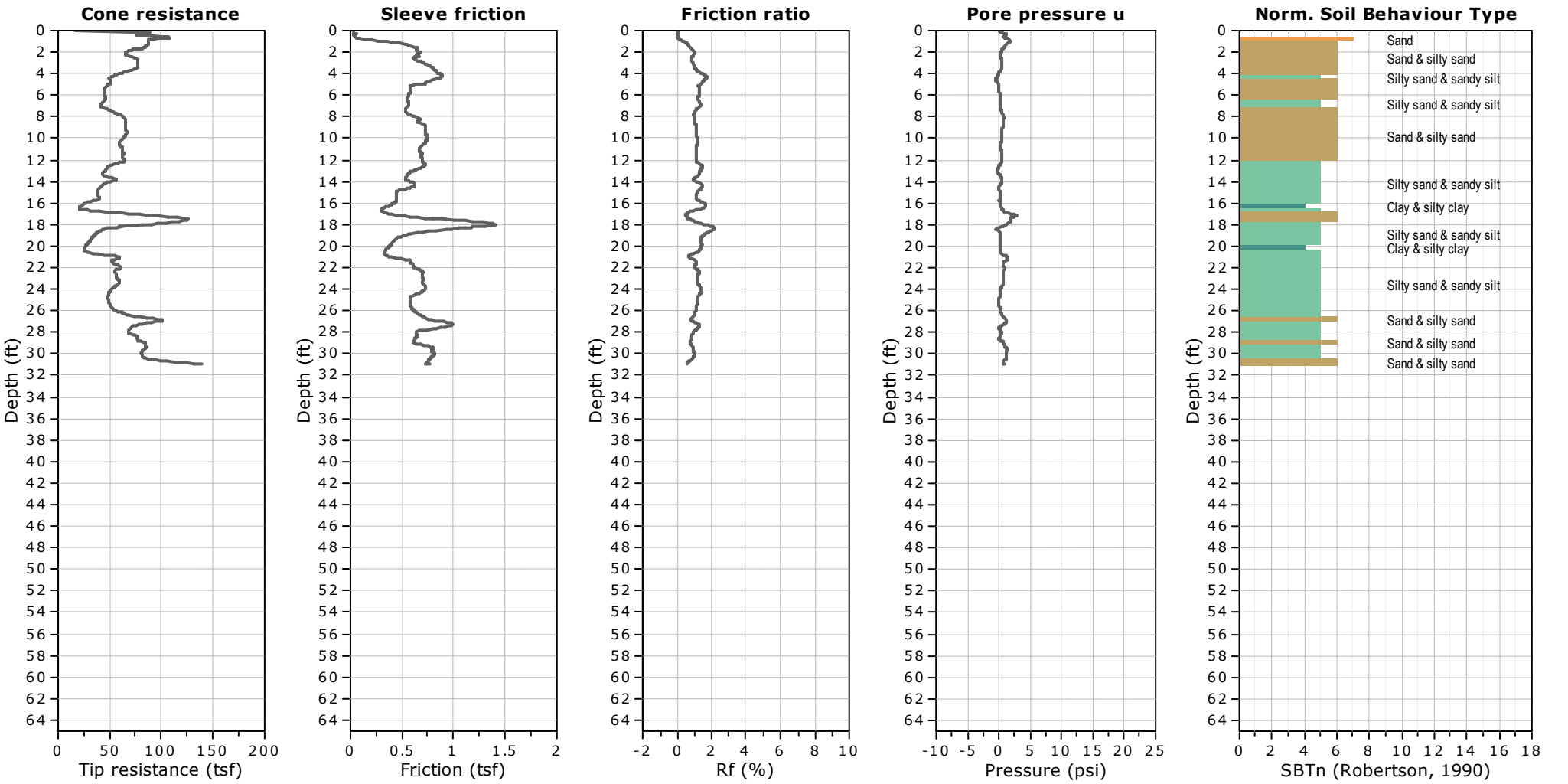
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-19
Total depth: 30.97 ft, Date: 4/8/2022
Surface Elevation: 664.86 ft
Coords: N 126022.157, E 453788.298
Cone Type: 200726
Cone Operator: Belch

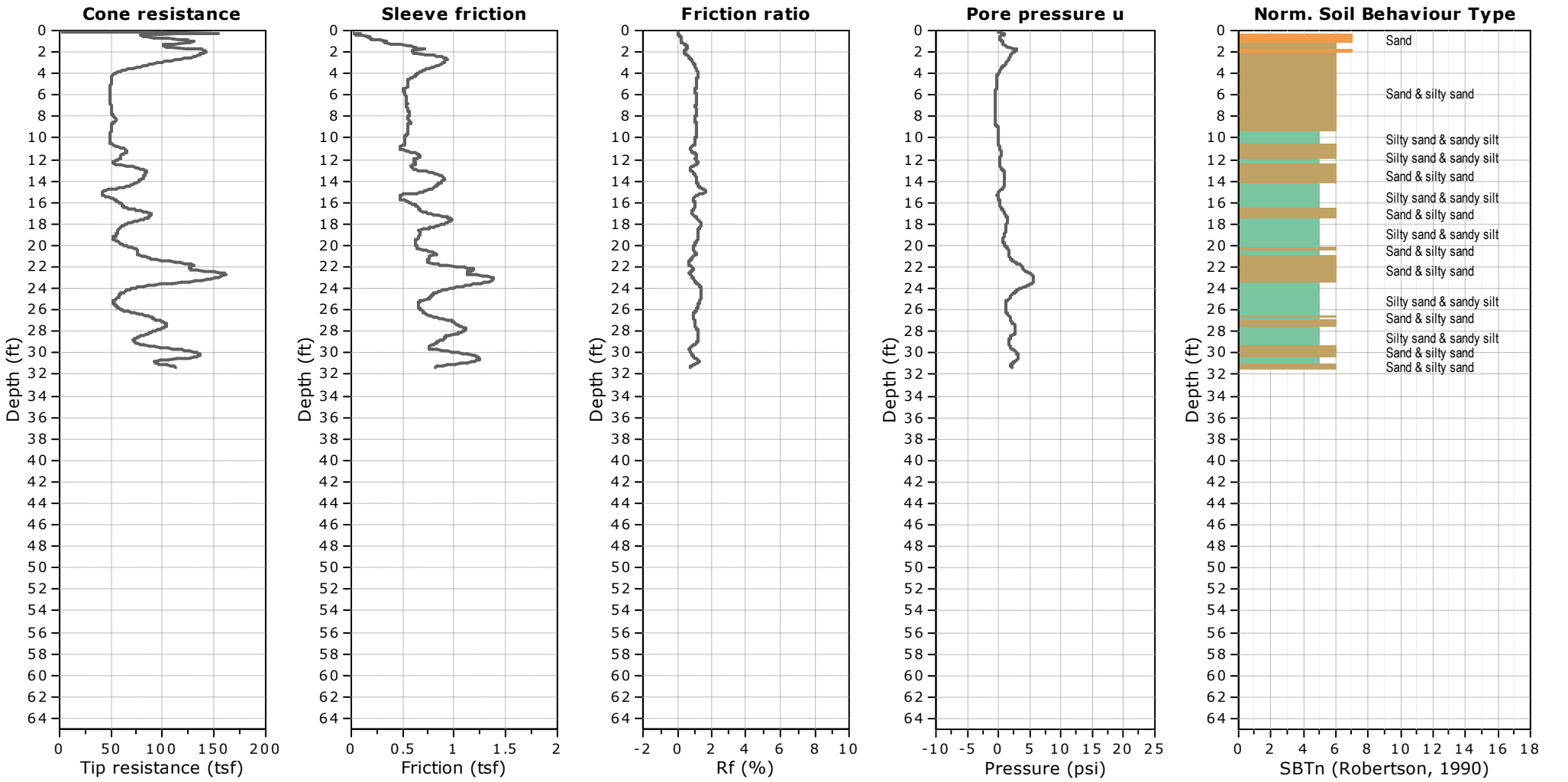
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-20
Total depth: 31.30 ft, Date: 4/8/2022
Surface Elevation: 665.65 ft
Coords: N 125978.434, E 453758.528
Cone Type: 200726
Cone Operator: Belch

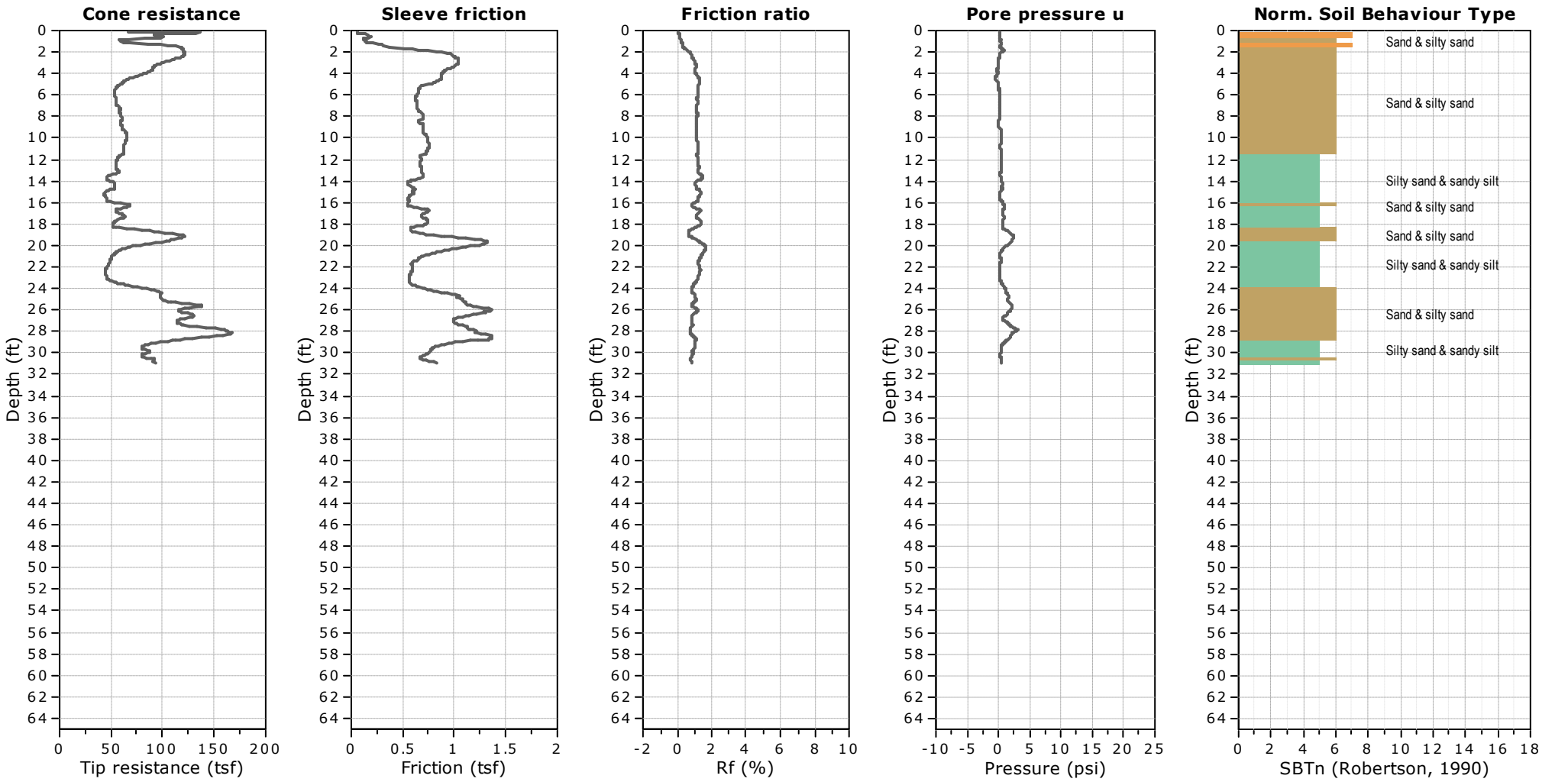
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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Minneapolis, MN 55438
952.995.2000

CPT: CPT-21
Total depth: 30.91 ft, Date: 4/8/2022
Surface Elevation: 665.22 ft
Coords: N 125963.332, E 453870.848
Cone Type: 200724
Cone Operator: Belch

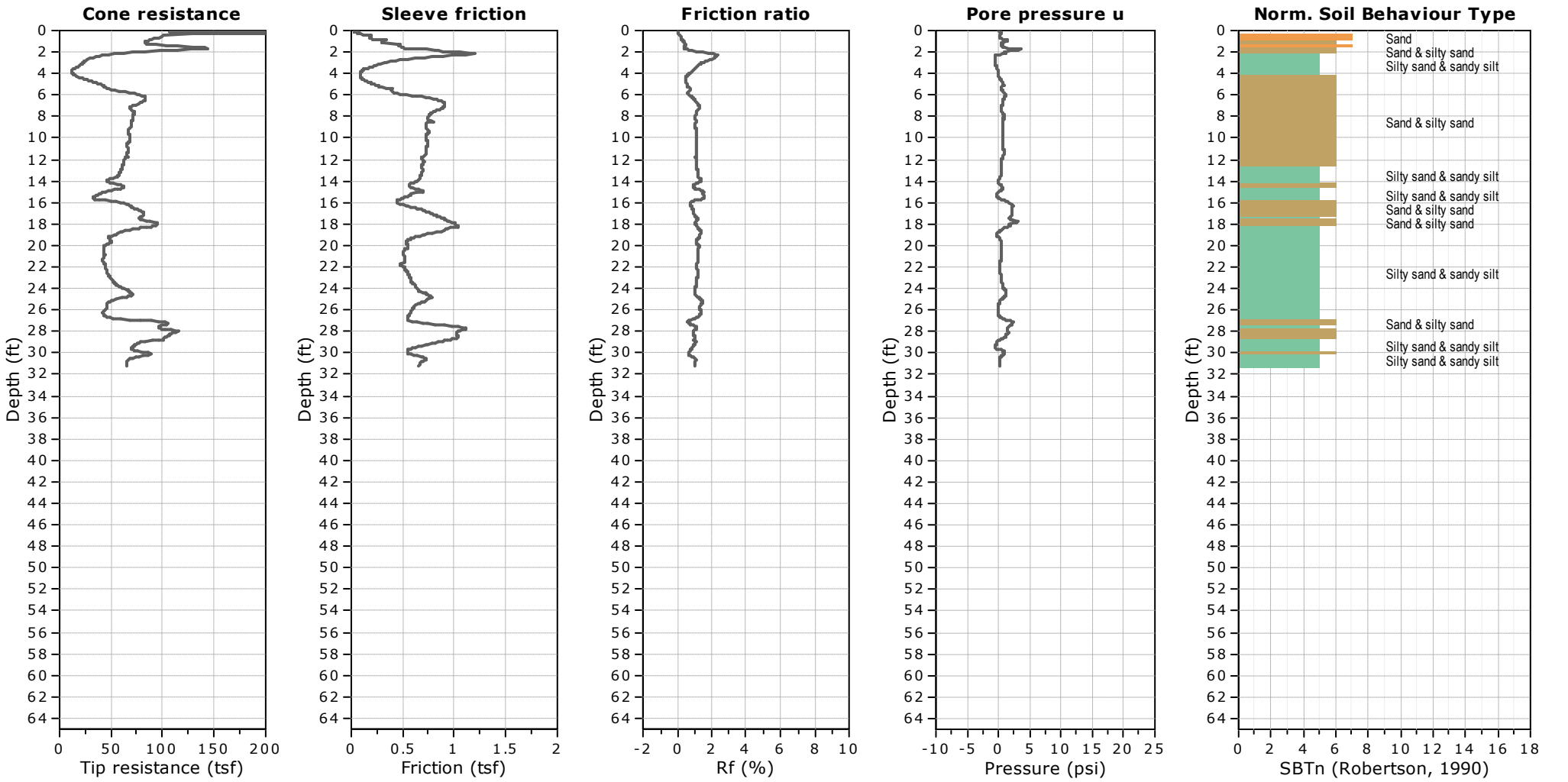
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-22
Total depth: 31.17 ft, Date: 4/8/2022
Surface Elevation: 665.99 ft
Coords: N 125922.067, E 453837.047
Cone Type: 200726
Cone Operator: Belch

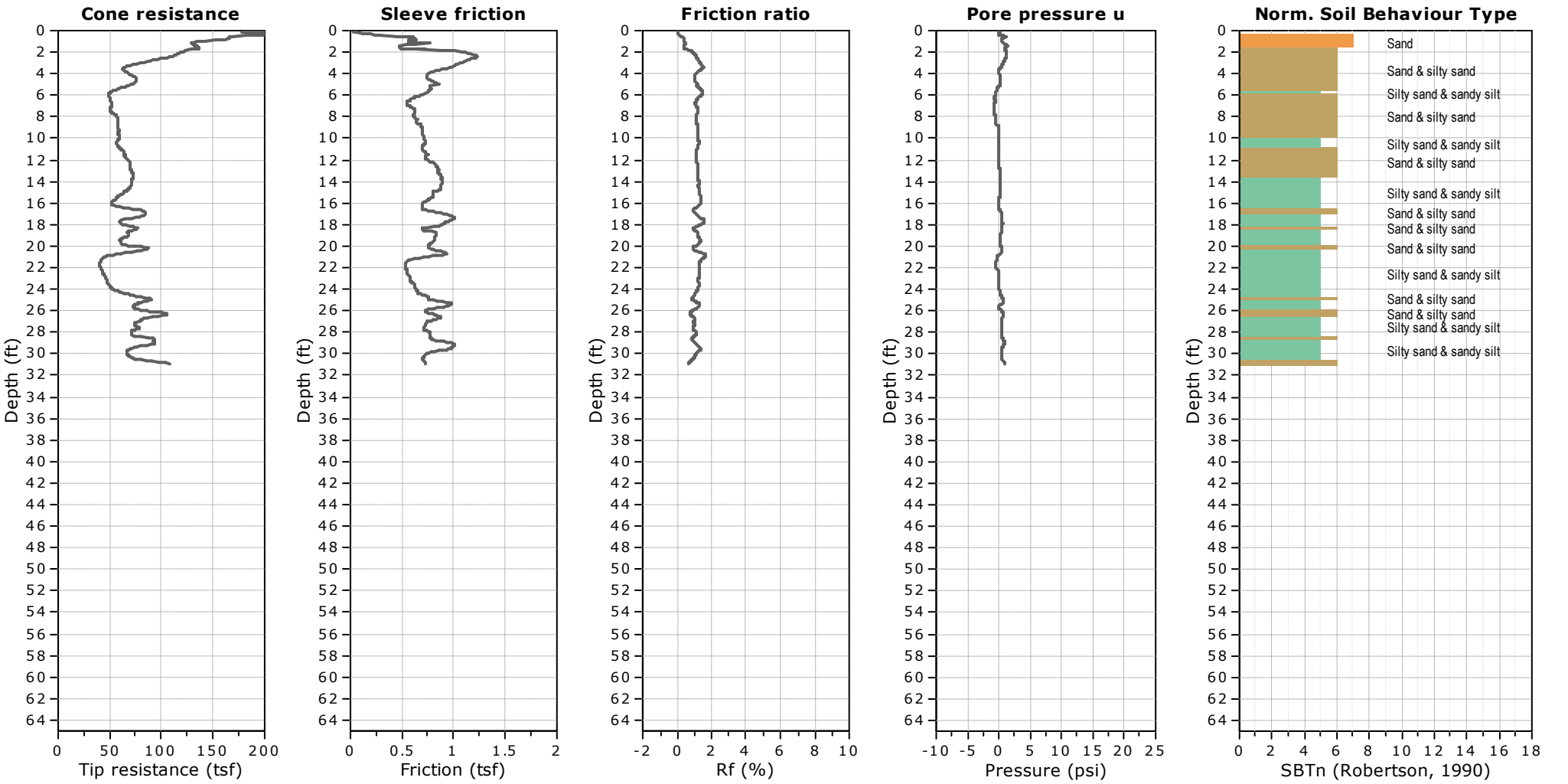
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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952.995.2000

CPT: CPT-23
Total depth: 30.91 ft, Date: 4/8/2022
Surface Elevation: 665.50 ft
Coords: N 125920.674, E 453930.153
Cone Type: 200724
Cone Operator: Belch

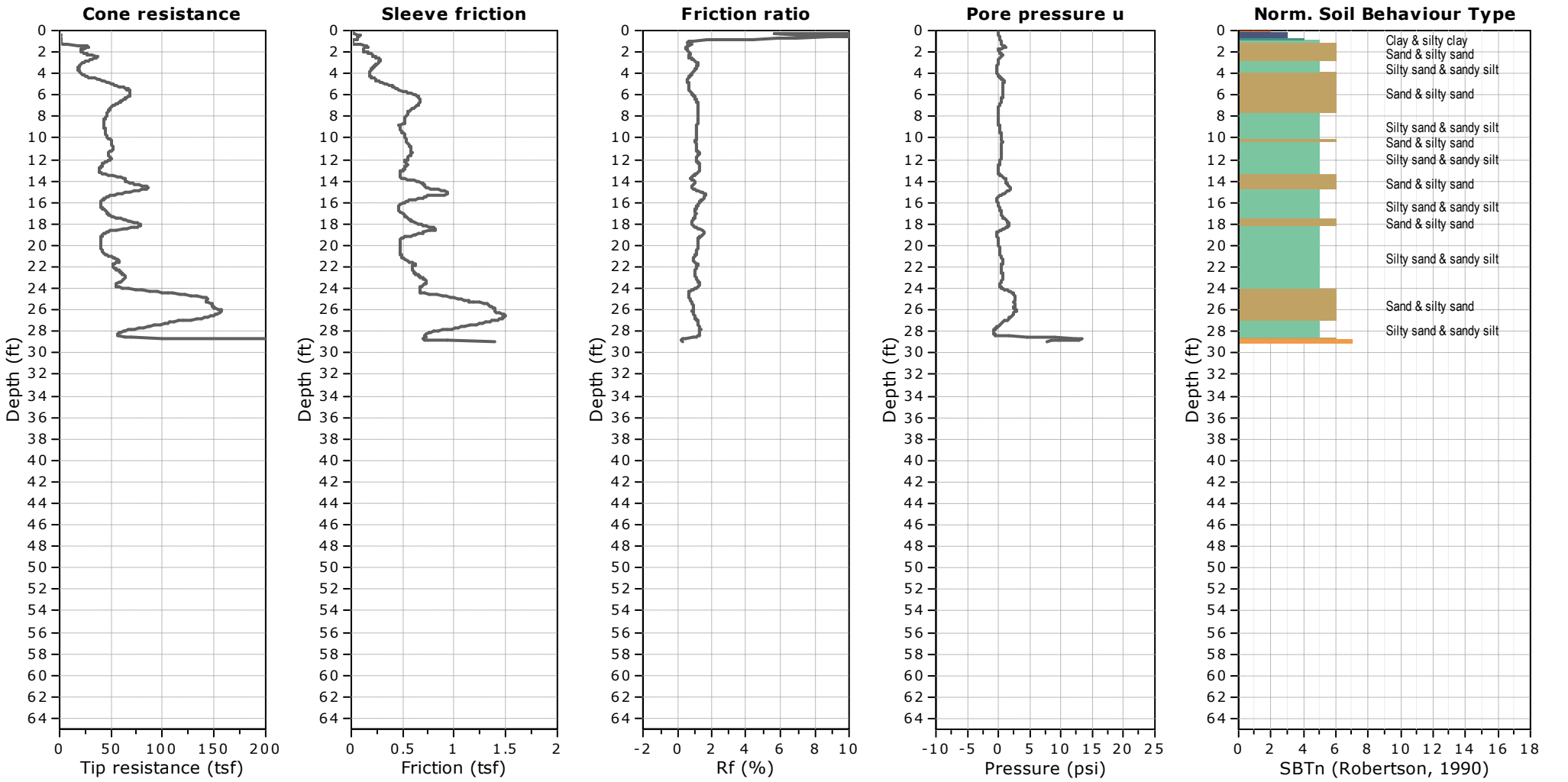
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-25
Total depth: 28.94 ft, Date: 4/9/2022
Surface Elevation: 664.45 ft
Coords: N 126168.685, E 453688.706
Cone Type: 200726
Cone Operator: Belch

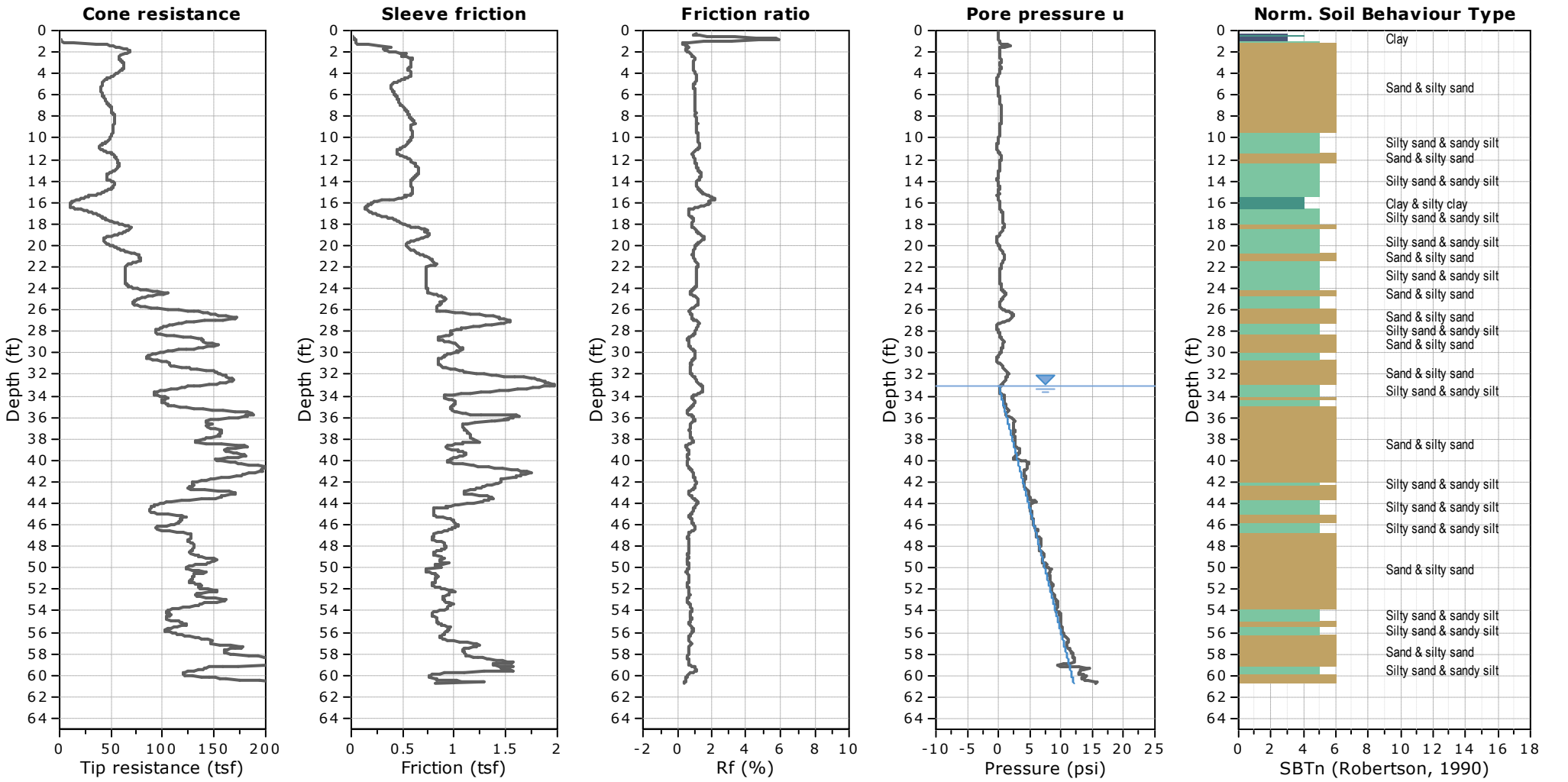
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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CPT: CPT-26
Total depth: 60.70 ft, Date: 4/9/2022
Surface Elevation: 664.16 ft
Coords: N 126157.368, E 453903.911
Cone Type: 200724
Cone Operator: Belch

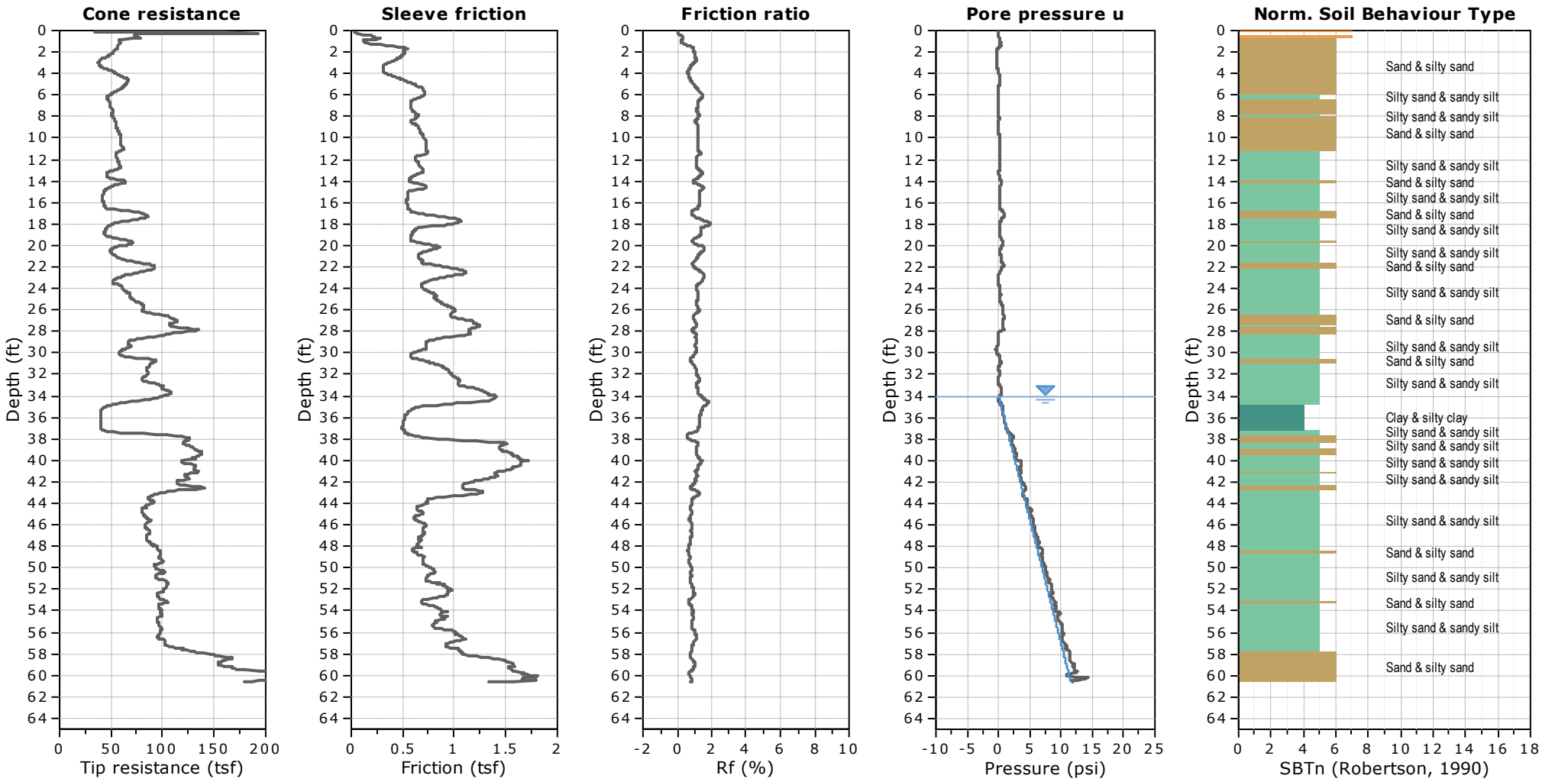
Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



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11001 Hampshire Avenue S
Minneapolis, MN 55438
952.995.2000

CPT: CPT-27
Total depth: 60.63 ft, Date: 4/8/2022
Surface Elevation: 665.44 ft
Coords: N 125973.239, E 453819.268
Cone Type: 200726
Cone Operator: Belch

Project: **Copper Rocks Developent**
Location: **La Crosse, WI** **Project Number: B2202146**



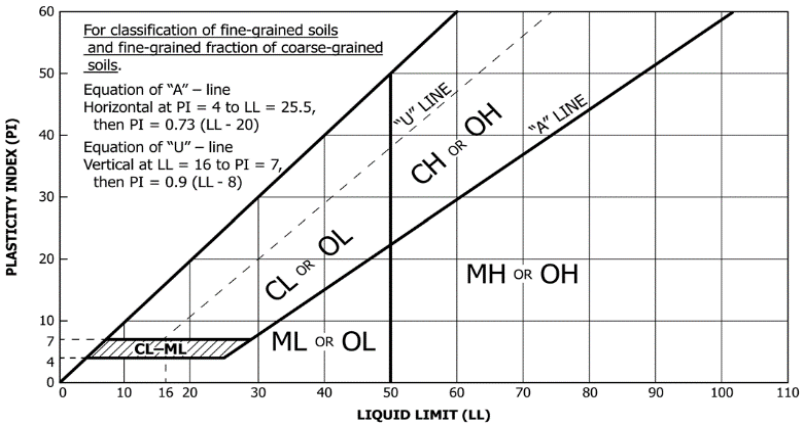
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Descriptive Terminology of Soil

Based on Standards ASTM D2487/2488
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines[C])	$C_u \geq 4$ and $1 \leq C_c \leq 3$[D]	GW	Well-graded gravel[E]
			$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$)[D]	GP	Poorly graded gravel[E]
		Gravels with Fines (More than 12% fines[C])	Fines classify as ML or MH	GM	Silty gravel[E F G]
			Fines Classify as CL or CH	GC	Clayey gravel[E F G]
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines[H])	$C_u \geq 6$ and $1 \leq C_c \leq 3$[D]	SW	Well-graded sand[I]
			$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$)[D]	SP	Poorly graded sand[I]
		Sands with Fines (More than 12% fines[H])	Fines classify as ML or MH	SM	Silty sand[F G I]
			Fines classify as CL or CH	SC	Clayey sand[F G I]
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean clay[K L M]
			PI < 4 or plots below "A" line[J]	ML	Silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OL	Organic clay[K L M N] / Organic silt[K L M O]
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay[K L M]
			PI plots below "A" line	MH	Elastic silt[K L M]
		Organic	Liquid Limit – oven dried / Liquid Limit – not dried <0.75	OH	Organic clay[K L M P] / Organic silt[K L M Q]
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat

A. Based on the material passing the 3-inch (75-mm) sieve.
B. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
C. Gravels with 5 to 12% fines require dual symbols:
   GW-GM well-graded gravel with silt
   GW-GC well-graded gravel with clay
   GP-GM poorly graded gravel with silt
   GP-GC poorly graded gravel with clay
D. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
E. If soil contains ≥ 15% sand, add "with sand" to group name.
F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
G. If fines are organic, add "with organic fines" to group name.
H. Sands with 5 to 12% fines require dual symbols:
   SW-SM well-graded sand with silt
   SW-SC well-graded sand with clay
   SP-SM poorly graded sand with silt
   SP-SC poorly graded sand with clay
I. If soil contains ≥ 15% gravel, add "with gravel" to group name.
J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
L. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
M. If soil contains ≥ 30% plus No. 200 predominantly gravel, add "gravelly" to group name.
N. PI ≥ 4 and plots on or above "A" line.
O. PI < 4 or plots below "A" line.
P. PI plots on or above "A" line.
Q. PI plots below "A" line.



Particle Size Identification

Boulders..... over 12"
Cobbles..... 3" to 12"
Gravel
  Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
  Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
Sand
  Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
  Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
  Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
Silt..... No. 200 (0.075 mm) to .005 mm
Clay..... < .005 mm

Relative Proportions[L, M]

trace..... 0 to 5%
little..... 6 to 14%
with..... ≥ 15%

Inclusion Thicknesses

lens..... 0 to 1/8"
seam..... 1/8" to 1"
layer..... over 1"

Apparent Relative Density of Cohesionless Soils

Very loose ..... 0 to 4 BPF
Loose ..... 5 to 10 BPF
Medium dense..... 11 to 30 BPF
Dense..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils	Blows Per Foot	Approximate Unconfined Compressive Strength
Very soft	0 to 1 BPF	< 0.25 tsf
Soft	2 to 4 BPF	0.25 to 0.5 tsf
Medium	5 to 8 BPF	0.5 to 1 tsf
Stiff	9 to 15 BPF	1 to 2 tsf
Very Stiff	16 to 30 BPF	2 to 4 tsf
Hard	over 30 BPF	> 4 tsf

Moisture Content:

Dry: Absence of moisture, dusty, dry to the touch.
Moist: Damp but no visible water.
Wet: Visible free water, usually soil is below water table.

Drilling Notes:

Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

Water Level: Indicates the water level measured by the drillers either while drilling (▽), at the end of drilling (▼), or at some time after drilling (▽▼).

Laboratory Tests

DD	Dry density, pcf	**OC**	Organic content, %	**LL**	Liquid limit
WD	Wet density, pcf	**q_p**	Pocket penetrometer strength, tsf	**PL**	Plastic limit
P200	% Passing #200 sieve	**MC**	Moisture content, %	**PI**	Plasticity index
		q_U	Unconfined compression test, tsf		

BRAUN INTERTEC

Descriptive Terminology
Cone Penetration Test

This document accompanies Cone Penetration Test Data. Please refer to the Boring Log Descriptive Terminology Sheet for information relevant to conventional v. Cone Penetration Test (CPT) boring logs.

Cone Penetration Test (CPT) sounding was performed in general accordance with ASTM D 5778 and consistent with the ordinary degree of care and skill used by reputable practitioners of the same discipline currently practicing under similar circumstances and in the same locality. No warranty, express or implied, is made.

Since subsurface conditions outside each CPT sounding are unknown, and soil, rock and pore water conditions cannot be relied upon to be consistent or uniform, no warranty is made that conditions adjacent to each sounding will necessarily be the same as or similar to those shown on this log. Braun Intertec is not responsible for any interpretations, assumptions, projections or interpolations of the data made by others.

Pore water pressure measurements and subsequently interpreted water levels shown on CPT logs should be used with discretion as they represent dynamic conditions. Dynamic pore water pressure measurements may deviate substantially from hydrostatic conditions, especially in cohesive soils. In cohesive soils, pore water pressures often take an extended time to reach equilibrium and thus reflect their true field level. Groundwater levels can be expected to vary both seasonally and yearly. The absence of notations on this log regarding water does not necessarily mean that groundwater is not present to the depth explored, or that a contractor will not encounter groundwater during excavation or construction.

CPT Terminology

CPT..... Cone Penetration Test
CPTU ..... Cone Penetration Test with Pore Pressure measurements
SCPTU..... Cone Penetration Test with Pore Pressure and Seismic measurements
Piezocone...Common name for CPTU test
Q_T ..... normalized cone resistance
B_q..... pore pressure ratio
F_r..... normalized friction ratio
σ_{vo}..... overburden pressure
σ'_{vo} ..... effective overburden pressure

q_T TIP RESISTANCE

The resistance at the cone corrected for water pressure. Data is from cone with a 60 degree apex angle and a 15 cm^2 end area.

f_s SLEEVE FRICTION RESISTANCE

The resistance along the sleeve of the penetrometer.

F_r Friction Ratio

Ratio of sleeve friction over corrected tip resistance. $F_r = f_s/q_t$

V_s Shear Wave Velocity

A measure of the speed at which a seismic wave travels through soil/rock.

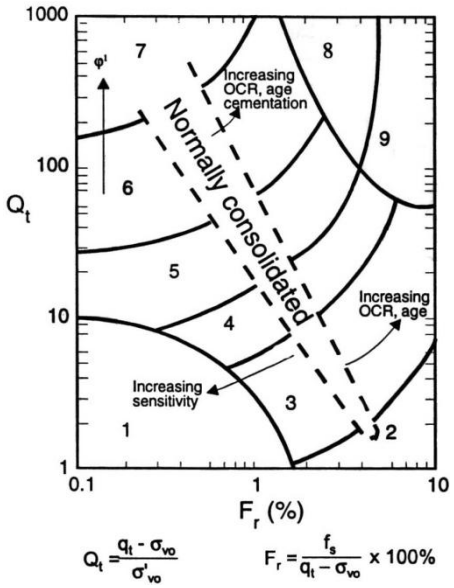
SBT SOIL BEHAVIOR TYPE

Soil Identification methods for the Cone Penetration Test are based on correlation charts developed from observations of CPT data and conventional borings. Please note that these identification charts are provided as a guide to Soil Behavior Type and should not be used to infer a soil classification based on grain size distribution.

Engineering judgment and comparison with augered borings is especially important in the proper interpretation of CPT data in certain geo-materials.

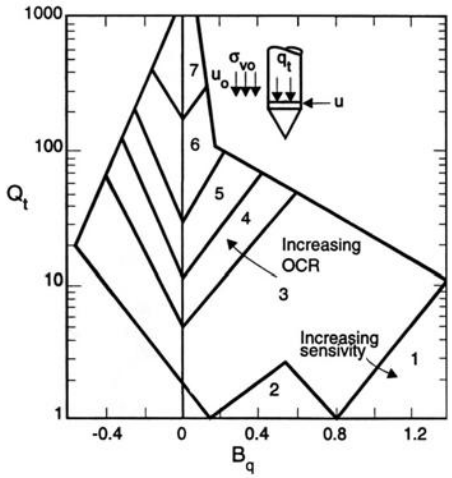
The following charts provide a Soil Behavior Type for the CPT Data. The numbers corresponding to different regions on the charts represent the following soil behavior types:

Soil Behavior Type based on friction ratio



Robertson CPT 1990

Soil Behavior Type based on pore pressure

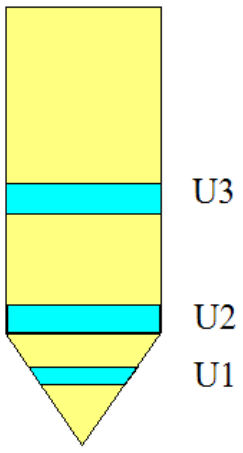


Robertson CPT 1990

1 Sensitive, Fine Grained
2 Organic Soils - Peat
3 Clays - Clay to Silty Clay
4 Silt Mixtures - Clayey Silt to Silty Clay
5 Sand Mixtures - Silty Sand to Sandy Silt
6 Sands - Clean Sand to Silty Sand
7 Gravelly Sand to Sand
8 Very Stiff Sand to Clayey Sand
9 Very Stiff, Fine Grained

U2 PORE WATER MEASUREMENTS

Pore water measurements reported on CPT logs are representative of pore water pressures measured at the U2 location, just behind the cone tip, prior to the sleeve, as shown in the figure below. These measurements are considered to represent dynamic pore water pressures due to the local disturbance caused by the cone tip. Dynamic pore water pressure decay and static pore water pressure measurements are reported on a Pore Water Pressure Dissipation Graph.



1002-CPS-23
Division of Industry Services
PO Box 2658
Madison, Wisconsin

Attachment 2:

SOIL AND SITE EVALUATION - STORM

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Attach a complete site plan on paper not less than 8 ½ x 11 inches in size. Plan must include, but not limited to vertical and horizontal reference point (BM), direction and percent of slope, scale or dimensions, north arrow, and BM reference to nearest road. ***Please print all information*** Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04(1)(m)]	County Parcel I.D. Reviewed by: Date:

Property Owner: MKB COPPER ROCKS, LLC	Property Location Govt. Lot ¼ ¼ S T N R E (or) W		
Property Owner's Mailing Address: 3800 EMERALD DRIVE EAST	Lot	Block #	Subd. Name or CSM #/Address
City, State Zip Phone Number LA CROSSE, WI 54601	☒ City ☐ Village ☐ Town 2415 STATE ROAD, LA CROSSE, WI		Nearest Road LOSEY BLVD

Drainage Area _____ ☐ sq. ft. ☐ acres Test site suitable for (check all that apply): ☐ Bio-retention; ☐ Subsurface Dispersal System; ☐ Reuse; ☐ Irrigation ☐ Other	Hydraulic Application Test Method ☒ Morphological Evaluation ☐ Double Ring Infiltrometer Other: (specify)	Soil Moisture Date of soil Borings: APR. 4, 2022 USDA-NRCS WETS Value: ☐ Dry = 1; ☒ Normal = 2; ☐ Wet = 3.

TP-28 #OBS ☒ Pit ☐ Boring Ground surface Elevation 663.2 ft. Elevation of limiting factor NA ft.

Horizon	Depth In.	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate Inches/Hr.
PVMT	0 – 10	---	---	---	---	---	---	---	---	---
B	10 – 32	10YR 3/2	NONE	SCL	1.GR.F	ML	A.S	0	<30	0.07
C	32 – 55	10YR 4/2	NONE	F.LS	0.SG.F	ML	A.S	0	<15	0.50
C	55 – 120	10YR 4/4	NONE	F.S	0.SG.F	ML	A.S	0	<5	0.50

Comments:

TP-29 #OBS ☒ Pit ☐ Boring Ground surface Elevation 664.4 ft. Elevation of limiting factor NA ft.

Horizon	Depth In.	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate Inches/Hr.
PVMT	0 – 9	---	---	---	---	---	---	---	---	---
C	9 – 120	10YR 5/4	NONE	F.S	0.SG.F	ML	A.S	0	<5	0.50

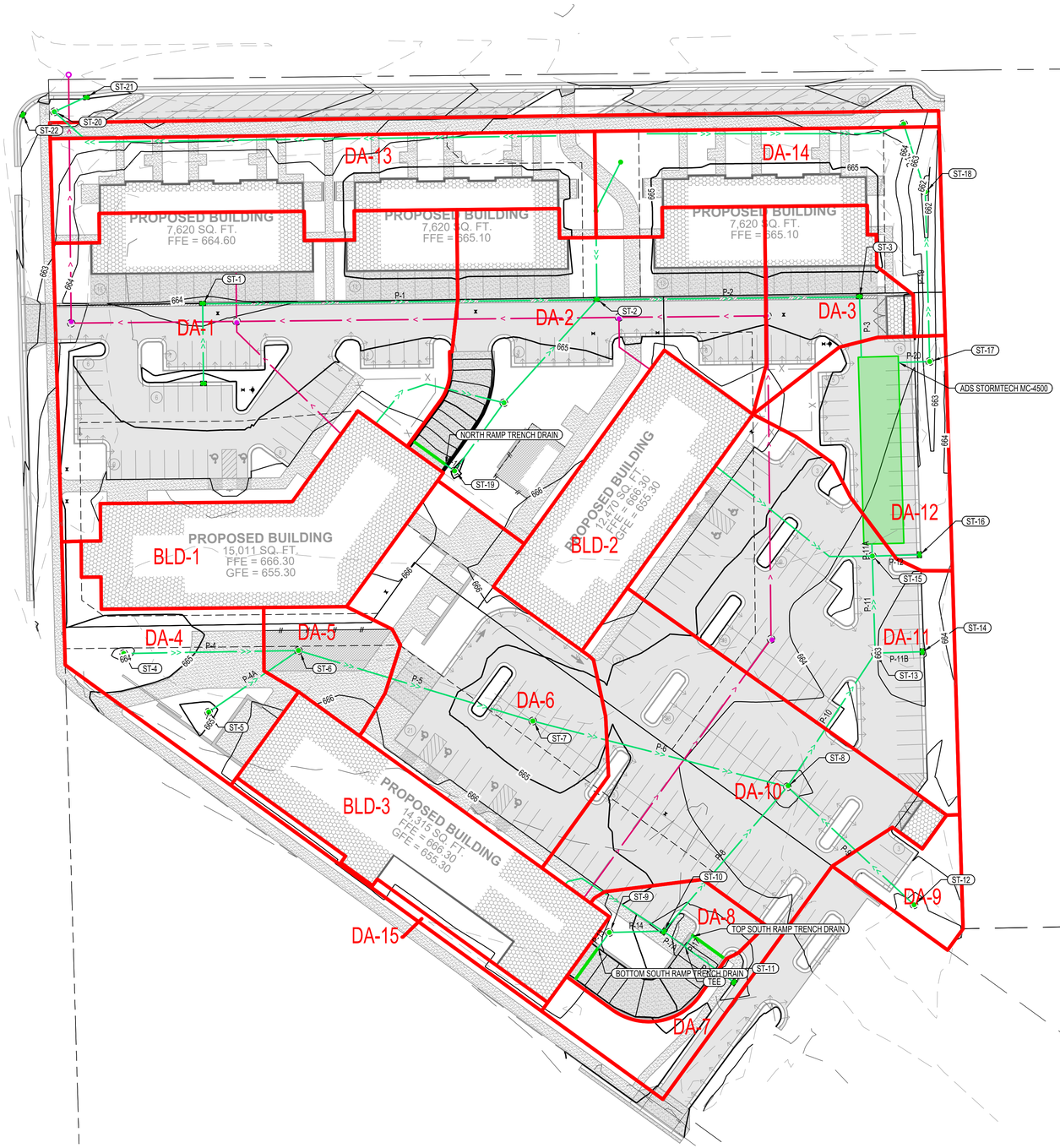
Comments:

Name: BRANDON WRIGHT	Signature:	Credential Number: SP-041100003
Address: 2309 Palace Street, La Crosse, WI	Date of Evaluation: APRIL 4, 2022	Phone Number: 608.781.7277

TP-30 #OBS ☐ Pit ☒ Boring Ground surface Elevation 664.6 ft. Elevation of limiting factor NA ft.

Horizon	Depth In.	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frags.	% Fines	Hydraulic App Rate Inches/Hr.
PVMT	0 – 9	---	---	---	---	---	---	---	---	---
B	9 – 32	10YR 3/2	NONE	F.LS	0.SG.F	ML	A.S	0	<15	0.50
C	32 – 120	10YR 4/4	NONE	F.S	0.SG.F	ML	A.S	0	<5	0.50
Comments:										

Overall Site Comments:



Watershed	Surface Cover	Area (SF)	Area (AC)	Percent Impervious
DA-1	Impervious	*31860*	0.732	79%
	Pervious	8631	0.198	
	Total	***40491***	**0.930**	
DA-2	Impervious	*19525*	0.448	69%
	Pervious	8710	0.200	
	Total	***28235***	**0.648**	
DA-3	Impervious	*6930*	0.160	90%
	Pervious	759	0.017	
	Total	***7689***	**0.177**	
DA-4	Impervious	*3587*	0.083	34%
	Pervious	7161	0.164	
	Total	***10748***	**0.247**	
DA-5	Impervious	*3760*	0.086	80%
	Pervious	949	0.022	
	Total	***4709***	**0.108**	
DA-6	Impervious	*17048*	0.392	77%
	Pervious	5070	0.116	
	Total	***22118***	**0.508**	
DA-7	Impervious	*1706*	0.039	37%
	Pervious	2916	0.067	
	Total	***4622***	**0.106**	
DA-8	Impervious	*5841*	0.134	85%
	Pervious	1054	0.024	
	Total	***6895***	**0.158**	
DA-9	Impervious	*1066*	0.025	29%
	Pervious	2628	0.060	
	Total	***3694***	**0.085**	
DA-10	Impervious	*24930*	0.573	95%
	Pervious	1327	0.030	
	Total	***26257***	**0.603**	
DA-11	Impervious	*20321*	0.467	77%
	Pervious	5925	0.136	
	Total	***26246***	**0.603**	
DA-12	Impervious	*6230*	0.143	58%
	Pervious	4482	0.103	
	Total	***10712***	**0.246**	
DA-13	Impervious	*8524*	0.196	48%
	Pervious	9159	0.210	
	Total	***17683***	**0.406**	
DA-14	Impervious	*4753*	0.109	34%
	Pervious	9158	0.210	
	Total	***13911***	**0.319**	
DA-15	Impervious	*0*	0.000	0%
	Pervious	1410	0.032	
	Total	***1410***	**0.032**	
BLD-1	Impervious	*15011*	0.345	100%
	Pervious	0	0.000	
	Total	***15011***	**0.345**	
BLD-2	Impervious	*12470*	0.286	100%
	Pervious	0	0.000	
	Total	***12470***	**0.286**	
BLD-3	Impervious	*15963*	0.366	100%
	Pervious	0	0.000	
	Total	***15963***	**0.366**	

TOTAL IMPERVIOUS	**4.584**	74%
TOTAL PERVIOUS	**1.589**	
TOTAL AREA	**6.173**	

N

0 40 80

SCALE IN FEET

ISG

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 PROPOSED STORMWATER CONDITIONS
DRAWN BY	
DESIGNED BY	
REVIEWED BY	
ORIGINAL ISSUE DATE	
CLIENT PROJECT NO.	

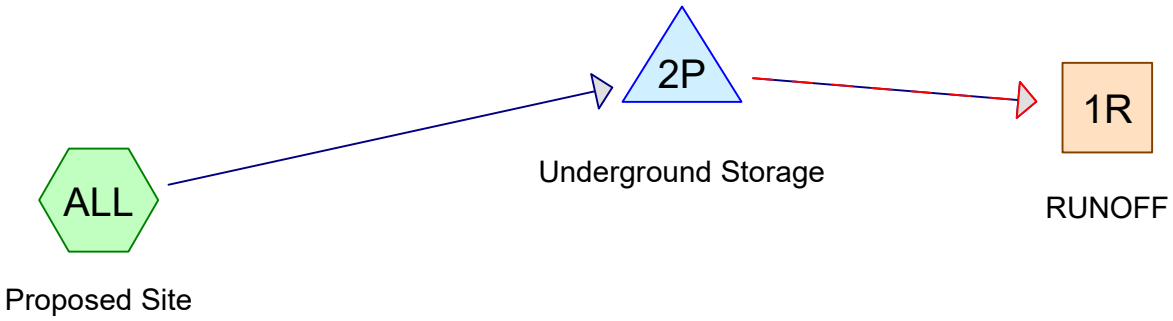
TITLE

PROPOSED DRAINAGE MAP

SHEET

1

OF 1



Subcat Reach Pond Link

Routing Diagram for 25290 Proposed Conditions
Prepared by ISG, Printed 5/20/2022
HydroCAD® 10.10-7a s/n 02403 © 2021 HydroCAD Software Solutions LLC

Project Notes

Defined 10 rainfall events from La Crosse IDF IDF

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	MSE 24-hr	3	Default	24.00	1	3.01	2
2	10-yr	MSE 24-hr	3	Default	24.00	1	4.46	2
3	100-yr	MSE 24-hr	3	Default	24.00	1	7.57	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.589	69	50-75% Grass cover, Fair, HSG B (ALL)
4.584	98	Paved parking, HSG B (ALL)
6.173	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
6.173	HSG B	ALL
0.000	HSG C	
0.000	HSG D	
0.000	Other	
6.173		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.589	0.000	0.000	0.000	1.589	50-75% Grass cover, Fair	ALL
0.000	4.584	0.000	0.000	0.000	4.584	Paved parking	ALL
0.000	**6.173**	**0.000**	**0.000**	**0.000**	**6.173**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	2P	655.50	654.50	167.0	0.0060	0.013	0.0	15.0	0.0

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ALL: Proposed Site Runoff Area=6.173 ac 74.26% Impervious Runoff Depth=2.24"
Flow Length=125' Tc=5.0 min CN=WQ Runoff=23.13 cfs 1.151 af

Reach 1R: RUNOFF Inflow=6.99 cfs 0.980 af
Outflow=6.99 cfs 0.980 af

Pond 2P: Underground Storage Peak Elev=658.47' Storage=17,615 cf Inflow=23.13 cfs 1.151 af
Discarded=0.07 cfs 0.171 af Primary=6.99 cfs 0.980 af Secondary=0.00 cfs 0.000 af Outflow=7.06 cfs 1.151 af

Total Runoff Area = 6.173 ac Runoff Volume = 1.151 af Average Runoff Depth = 2.24"
25.74% Pervious = 1.589 ac 74.26% Impervious = 4.584 ac

Summary for Subcatchment ALL: Proposed Site

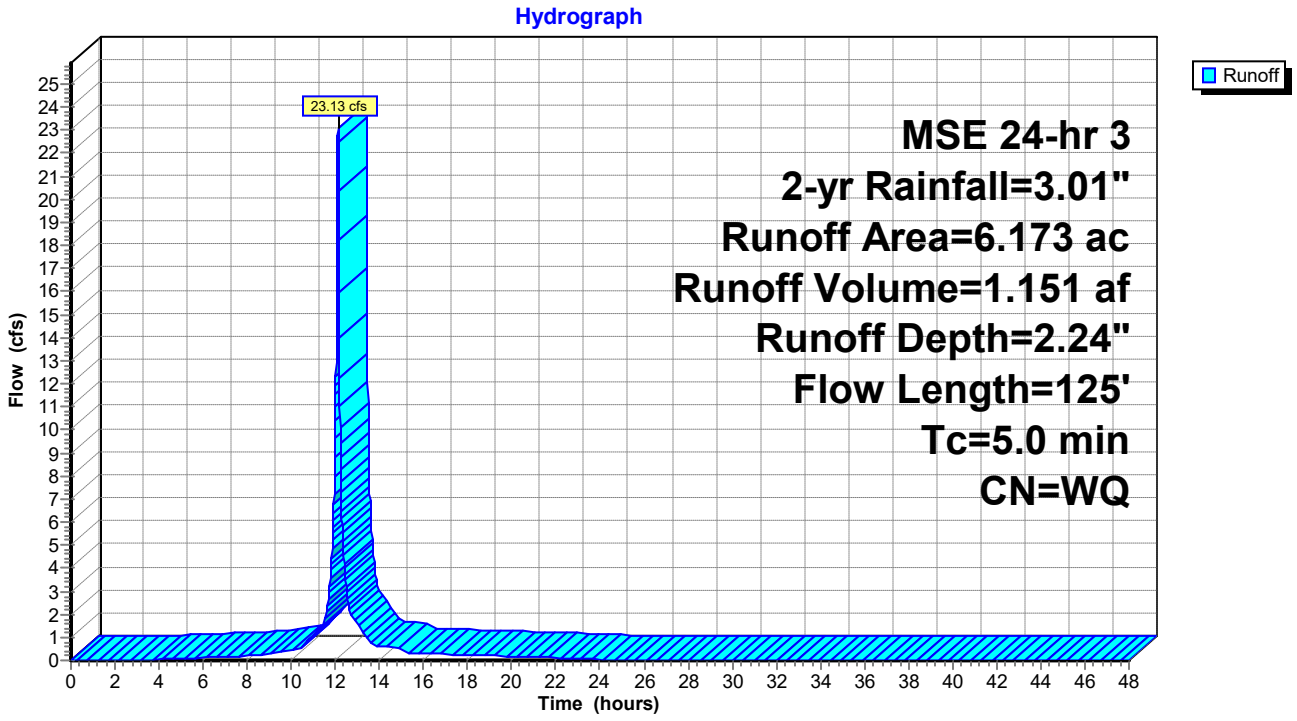
Runoff = 23.13 cfs @ 12.12 hrs, Volume= 1.151 af, Depth= 2.24"
Routed to Pond 2P : Underground Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-yr Rainfall=3.01"

Area (ac)	CN	Description
4.584	98	Paved parking, HSG B
1.589	69	50-75% Grass cover, Fair, HSG B
6.173		Weighted Average
1.589	69	25.74% Pervious Area
4.584	98	74.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0176	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.01"
0.1	25	0.0280	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	125	Total, Increased to minimum Tc = 5.0 min			

Subcatchment ALL: Proposed Site

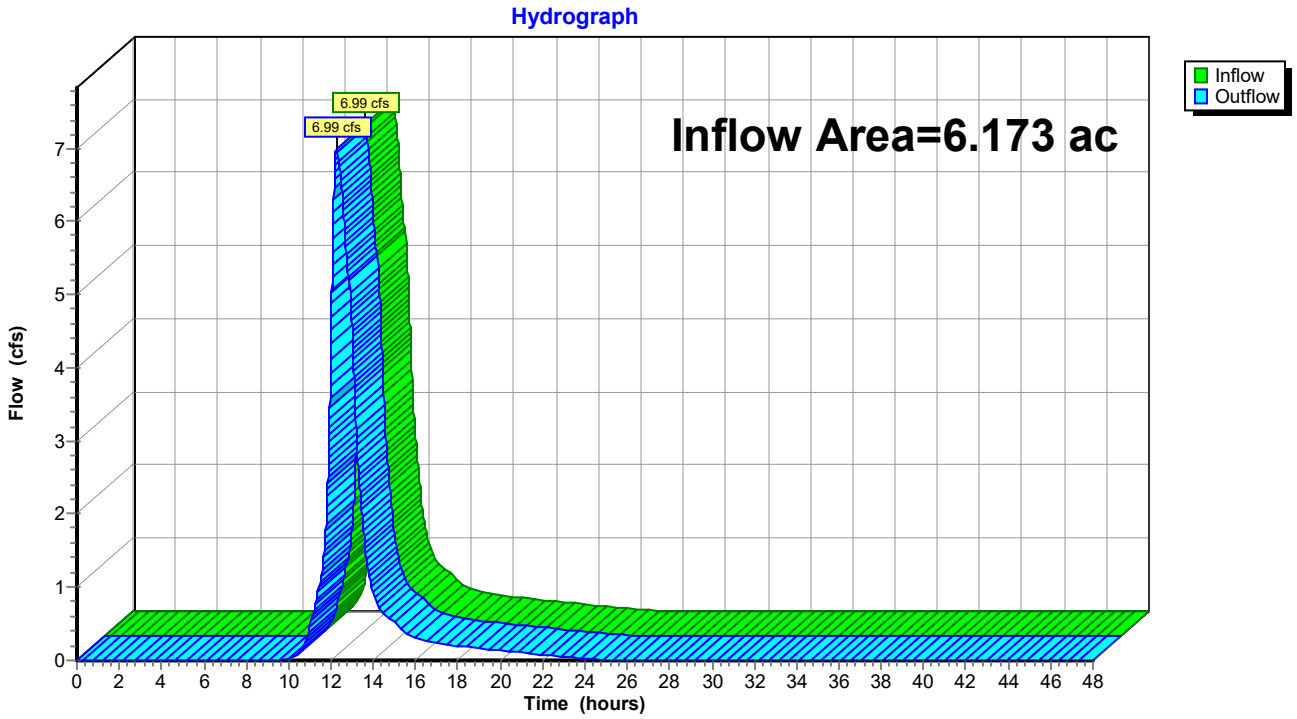


Summary for Reach 1R: RUNOFF

Inflow Area = 6.173 ac, 74.26% Impervious, Inflow Depth = 1.90" for 2-yr event
Inflow = 6.99 cfs @ 12.26 hrs, Volume= 0.980 af
Outflow = 6.99 cfs @ 12.26 hrs, Volume= 0.980 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 1R: RUNOFF



Summary for Pond 2P: Underground Storage

Inflow Area = 6.173 ac, 74.26% Impervious, Inflow Depth = 2.24" for 2-yr event
Inflow = 23.13 cfs @ 12.12 hrs, Volume= 1.151 af
Outflow = 7.06 cfs @ 12.26 hrs, Volume= 1.151 af, Atten= 69%, Lag= 8.6 min
Discarded = 0.07 cfs @ 12.37 hrs, Volume= 0.171 af
Primary = 6.99 cfs @ 12.26 hrs, Volume= 0.980 af
Routed to Reach 1R : RUNOFF
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : RUNOFF

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 658.47' @ 12.26 hrs Surf.Area= 6,123 sf Storage= 17,615 cf

Plug-Flow detention time= 96.3 min calculated for 1.150 af (100% of inflow)
Center-of-Mass det. time= 96.4 min (855.5 - 759.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	654.50'	9,580 cf	**46.67'W x 120.17'L x 7.00'H Field A** 39,254 cf Overall - 15,304 cf Embedded = 23,951 cf x 40.0% Voids
#2A	655.50'	15,304 cf	**ADS_StormTech MC-4500 b +Cap** x 140 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 140 Chambers in 5 Rows Cap Storage= 39.5 cf x 2 x 5 rows = 395.0 cf
#3	655.50'	471 cf	**4.00'D x 7.50'H Vertical Cone/Cylinder** x 5
#4	662.50'	87,174 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#5	655.50'	506 cf	**24.0" Round Pipe Storage 24"** L= 161.0' S= 0.0050 '/'
#6	655.50'	486 cf	**21.0" Round Pipe Storage 21"** -Impervious L= 202.0' S= 0.0074 '/'
#7	656.99'	435 cf	**18.0" Round Pipe Storage N 18"** L= 246.0' S= 0.0050 '/'
#8	655.56'	201 cf	**15.0" Round Pipe Storage SW 15"** -Impervious L= 164.0' S= 0.0050 '/'
#9	658.00'	440 cf	**4.00'D x 7.00'H Vertical Cone/Cylinder** x 5
#10	657.00'	528 cf	**4.00'D x 7.00'H Vertical Cone/Cylinder** x 6
		115,124 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
662.50	0	0	0
663.00	400	100	100
664.00	34,410	17,405	17,505
665.00	104,927	69,669	87,174

Device	Routing	Invert	Outlet Devices
#1	Primary	655.50'	**15.0" Round Culvert** L= 167.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 655.50' / 654.50' S= 0.0060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	654.50'	**0.500 in/hr Exfiltration over Surface area**
#3	Secondary	662.85'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.15 0.50 1.00 Width (feet) 0.00 6.00 15.00 30.00

Discarded OutFlow Max=0.07 cfs @ 12.37 hrs HW=658.36' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=6.99 cfs @ 12.26 hrs HW=658.47' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 6.99 cfs @ 5.70 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=654.50' TW=0.00' (Dynamic Tailwater)
3=Custom Weir/Orifice (Controls 0.00 cfs)

Pond 2P: Underground Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 5 rows = 395.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

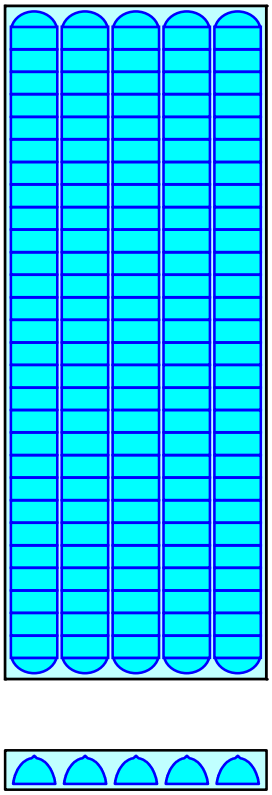
28 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 118.17' Row Length +12.0" End Stone x 2 = 120.17' Base Length
5 Rows x 100.0" Wide + 9.0" Spacing x 4 + 12.0" Side Stone x 2 = 46.67' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

140 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 5 Rows = 15,303.7 cf Chamber Storage

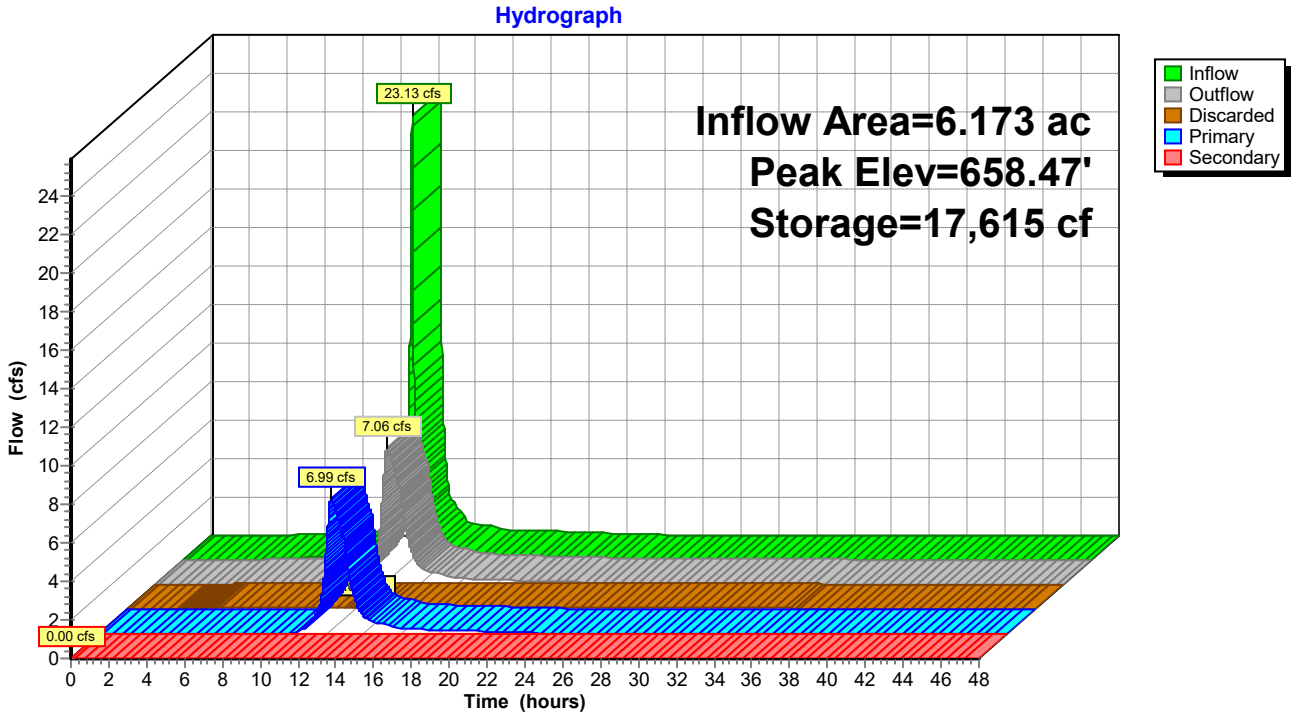
39,254.4 cf Field - 15,303.7 cf Chambers = 23,950.8 cf Stone x 40.0% Voids = 9,580.3 cf Stone Storage

Chamber Storage + Stone Storage = 24,884.0 cf = 0.571 af
Overall Storage Efficiency = 63.4%
Overall System Size = 120.17' x 46.67' x 7.00'

140 Chambers
1,453.9 cy Field
887.1 cy Stone



Pond 2P: Underground Storage



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ALL: Proposed Site Runoff Area=6.173 ac 74.26% Impervious Runoff Depth=3.54"
Flow Length=125' Tc=5.0 min CN=WQ Runoff=36.48 cfs 1.822 af

Reach 1R: RUNOFF Inflow=10.14 cfs 1.643 af
Outflow=10.14 cfs 1.643 af

Pond 2P: Underground Storage Peak Elev=661.47' Storage=27,375 cf Inflow=36.48 cfs 1.822 af
Discarded=0.07 cfs 0.180 af Primary=10.14 cfs 1.643 af Secondary=0.00 cfs 0.000 af Outflow=10.21 cfs 1.822 af

Total Runoff Area = 6.173 ac Runoff Volume = 1.822 af Average Runoff Depth = 3.54"
25.74% Pervious = 1.589 ac 74.26% Impervious = 4.584 ac

Summary for Subcatchment ALL: Proposed Site

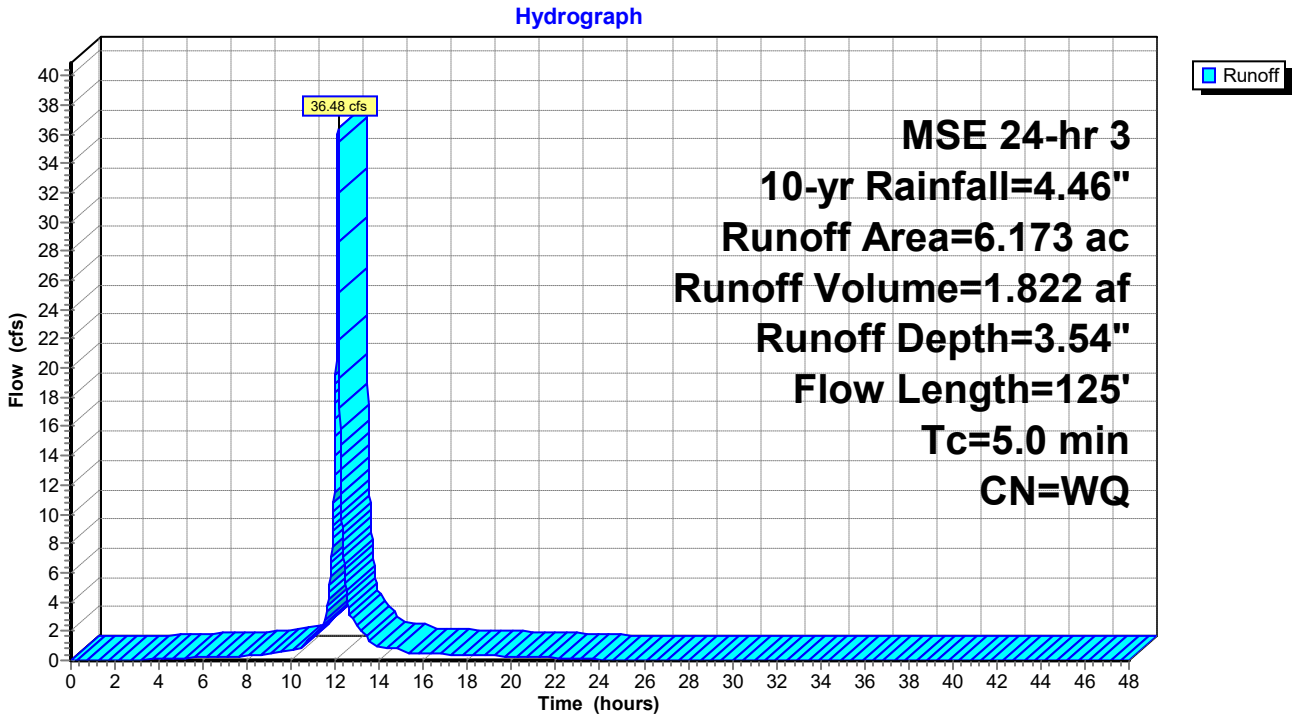
Runoff = 36.48 cfs @ 12.12 hrs, Volume= 1.822 af, Depth= 3.54"
Routed to Pond 2P : Underground Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 10-yr Rainfall=4.46"

Area (ac)	CN	Description
4.584	98	Paved parking, HSG B
1.589	69	50-75% Grass cover, Fair, HSG B
6.173		Weighted Average
1.589	69	25.74% Pervious Area
4.584	98	74.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0176	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.01"
0.1	25	0.0280	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	125	Total, Increased to minimum Tc = 5.0 min			

Subcatchment ALL: Proposed Site

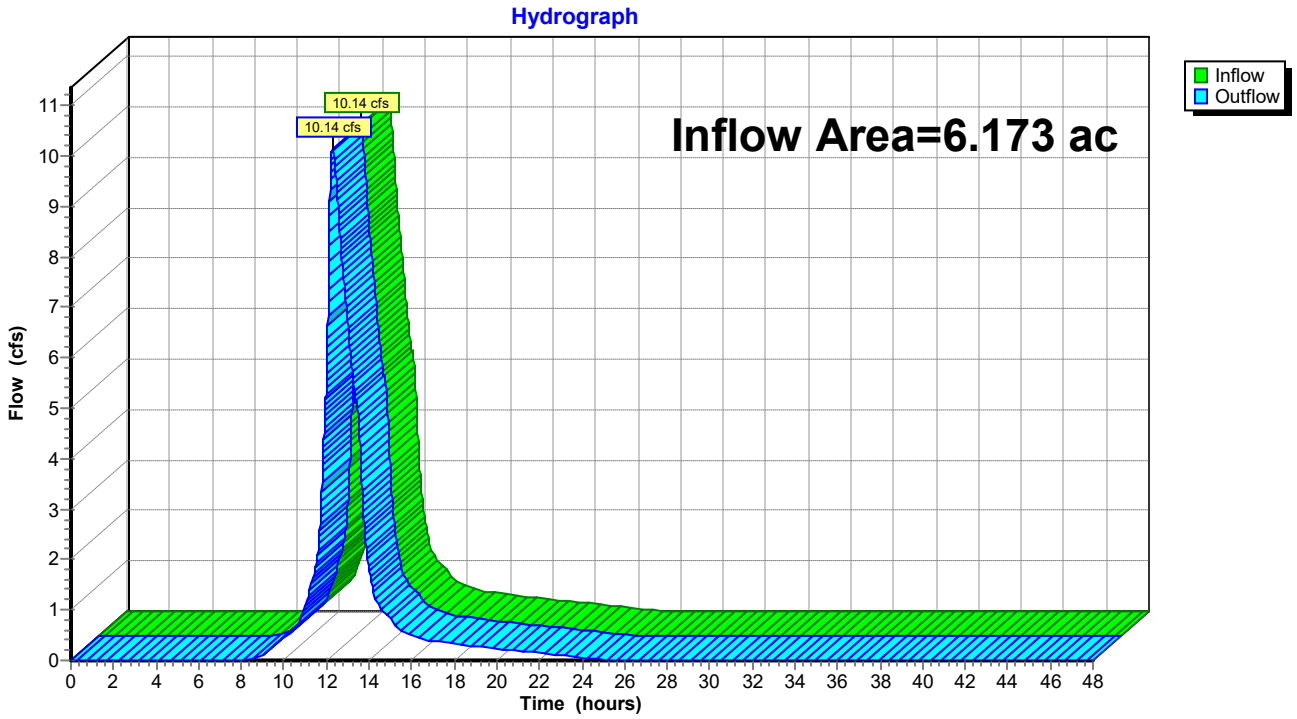


Summary for Reach 1R: RUNOFF

Inflow Area = 6.173 ac, 74.26% Impervious, Inflow Depth = 3.19" for 10-yr event
Inflow = 10.14 cfs @ 12.28 hrs, Volume= 1.643 af
Outflow = 10.14 cfs @ 12.28 hrs, Volume= 1.643 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 1R: RUNOFF



Summary for Pond 2P: Underground Storage

Inflow Area = 6.173 ac, 74.26% Impervious, Inflow Depth = 3.54" for 10-yr event
Inflow = 36.48 cfs @ 12.12 hrs, Volume= 1.822 af
Outflow = 10.21 cfs @ 12.28 hrs, Volume= 1.822 af, Atten= 72%, Lag= 9.4 min
Discarded = 0.07 cfs @ 12.08 hrs, Volume= 0.180 af
Primary = 10.14 cfs @ 12.28 hrs, Volume= 1.643 af
Routed to Reach 1R : RUNOFF
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 1R : RUNOFF

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 661.47' @ 12.28 hrs Surf.Area= 5,809 sf Storage= 27,375 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 80.1 min (834.8 - 754.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	654.50'	9,580 cf	**46.67'W x 120.17'L x 7.00'H Field A** 39,254 cf Overall - 15,304 cf Embedded = 23,951 cf x 40.0% Voids
#2A	655.50'	15,304 cf	**ADS_StormTech MC-4500 b +Cap** x 140 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 140 Chambers in 5 Rows Cap Storage= 39.5 cf x 2 x 5 rows = 395.0 cf
#3	655.50'	471 cf	**4.00'D x 7.50'H Vertical Cone/Cylinder** x 5
#4	662.50'	87,174 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#5	655.50'	506 cf	**24.0" Round Pipe Storage 24"** L= 161.0' S= 0.0050 '/'
#6	655.50'	486 cf	**21.0" Round Pipe Storage 21"** -Impervious L= 202.0' S= 0.0074 '/'
#7	656.99'	435 cf	**18.0" Round Pipe Storage N 18"** L= 246.0' S= 0.0050 '/'
#8	655.56'	201 cf	**15.0" Round Pipe Storage SW 15"** -Impervious L= 164.0' S= 0.0050 '/'
#9	658.00'	440 cf	**4.00'D x 7.00'H Vertical Cone/Cylinder** x 5
#10	657.00'	528 cf	**4.00'D x 7.00'H Vertical Cone/Cylinder** x 6
		115,124 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
662.50	0	0	0
663.00	400	100	100
664.00	34,410	17,405	17,505
665.00	104,927	69,669	87,174

Device	Routing	Invert	Outlet Devices
#1	Primary	655.50'	**15.0" Round Culvert** L= 167.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 655.50' / 654.50' S= 0.0060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	654.50'	**0.500 in/hr Exfiltration over Surface area**
#3	Secondary	662.85'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.15 0.50 1.00 Width (feet) 0.00 6.00 15.00 30.00

Discarded OutFlow Max=0.07 cfs @ 12.08 hrs HW=658.30' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=10.14 cfs @ 12.28 hrs HW=661.47' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 10.14 cfs @ 8.26 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=654.50' TW=0.00' (Dynamic Tailwater)
3=Custom Weir/Orifice (Controls 0.00 cfs)

Pond 2P: Underground Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 5 rows = 395.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

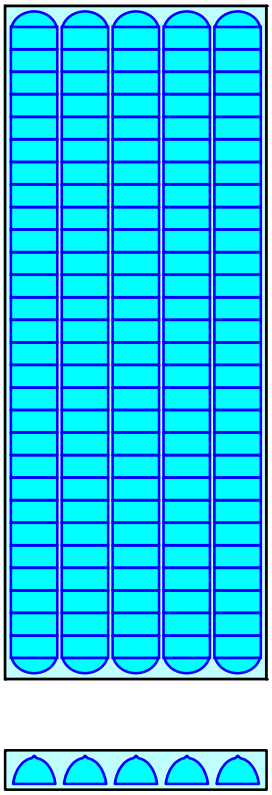
28 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 118.17' Row Length +12.0" End Stone x 2 = 120.17' Base Length
5 Rows x 100.0" Wide + 9.0" Spacing x 4 + 12.0" Side Stone x 2 = 46.67' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

140 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 5 Rows = 15,303.7 cf Chamber Storage

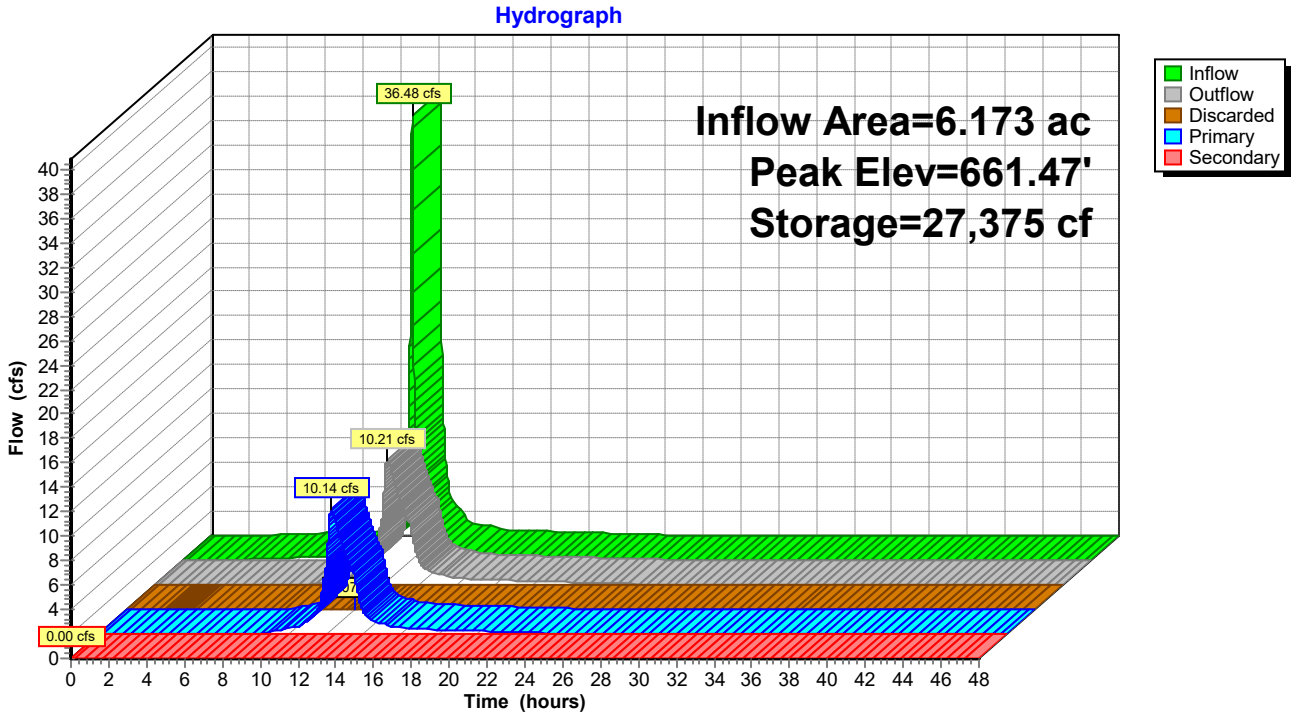
39,254.4 cf Field - 15,303.7 cf Chambers = 23,950.8 cf Stone x 40.0% Voids = 9,580.3 cf Stone Storage

Chamber Storage + Stone Storage = 24,884.0 cf = 0.571 af
Overall Storage Efficiency = 63.4%
Overall System Size = 120.17' x 46.67' x 7.00'

140 Chambers
1,453.9 cy Field
887.1 cy Stone



Pond 2P: Underground Storage



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ALL: Proposed Site Runoff Area=6.173 ac 74.26% Impervious Runoff Depth=6.47"
Flow Length=125' Tc=5.0 min CN=WQ Runoff=66.20 cfs 3.328 af

Reach 1R: RUNOFF Inflow=45.25 cfs 3.133 af
Outflow=45.25 cfs 3.133 af

Pond 2P: Underground Storage Peak Elev=663.77' Storage=38,286 cf Inflow=66.20 cfs 3.328 af
Discarded=0.37 cfs 0.195 af Primary=12.01 cfs 2.556 af Secondary=33.25 cfs 0.577 af Outflow=45.63 cfs 3.328 af

Total Runoff Area = 6.173 ac Runoff Volume = 3.328 af Average Runoff Depth = 6.47"
25.74% Pervious = 1.589 ac 74.26% Impervious = 4.584 ac

Summary for Subcatchment ALL: Proposed Site

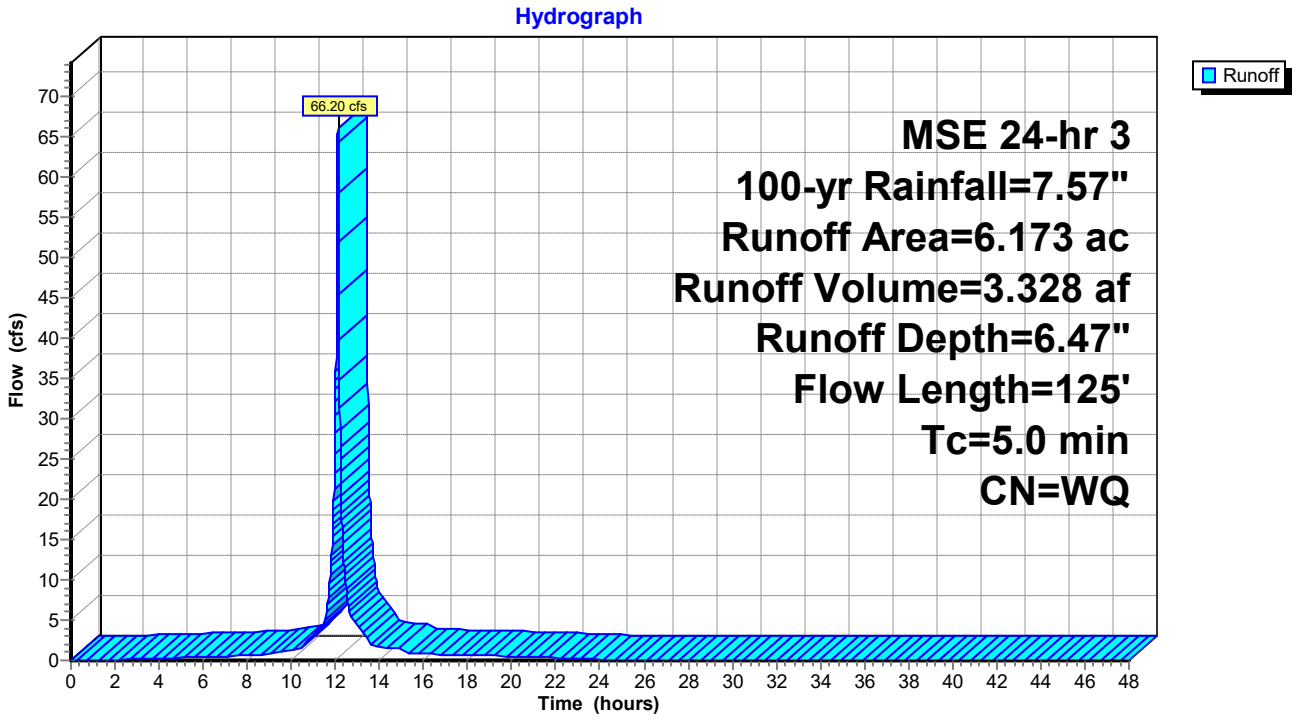
Runoff = 66.20 cfs @ 12.12 hrs, Volume= 3.328 af, Depth= 6.47"
Routed to Pond 2P : Underground Storage

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-yr Rainfall=7.57"

Area (ac)	CN	Description
4.584	98	Paved parking, HSG B
1.589	69	50-75% Grass cover, Fair, HSG B
6.173		Weighted Average
1.589	69	25.74% Pervious Area
4.584	98	74.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0176	1.27		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.01"
0.1	25	0.0280	3.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	125	Total, Increased to minimum Tc = 5.0 min			

Subcatchment ALL: Proposed Site

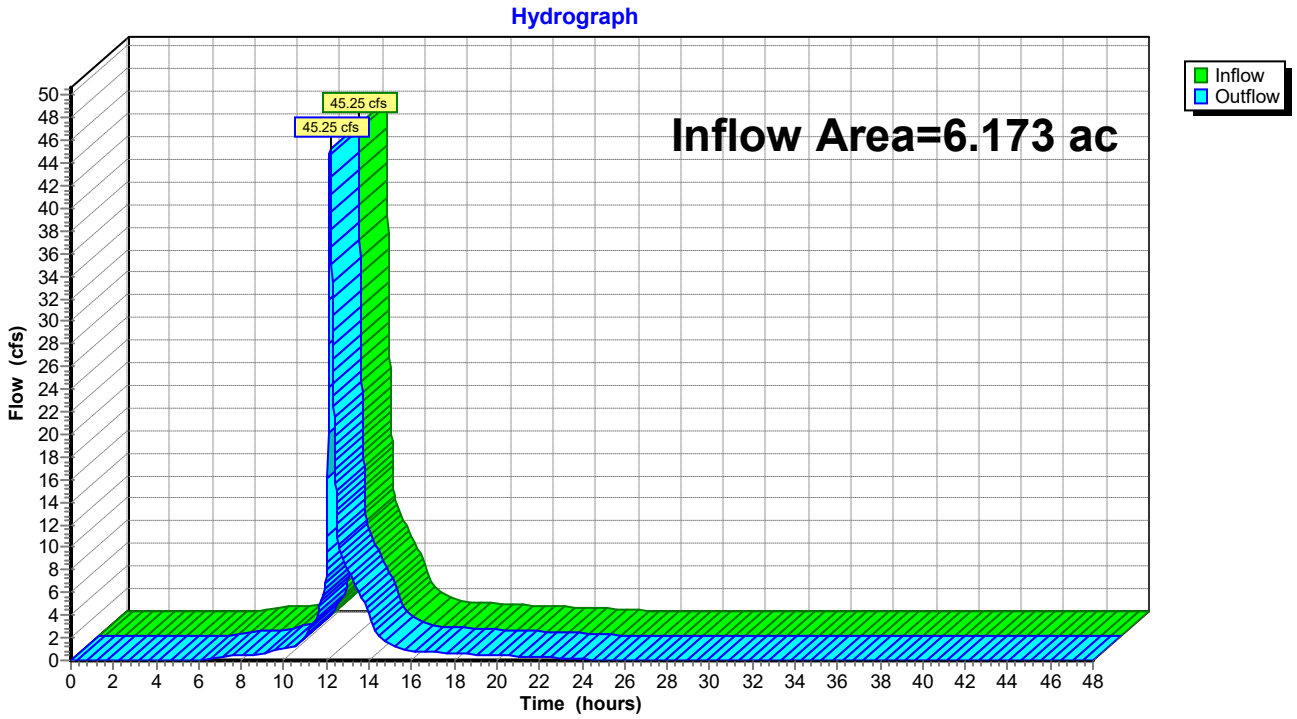


Summary for Reach 1R: RUNOFF

Inflow Area = 6.173 ac, 74.26% Impervious, Inflow Depth = 6.09" for 100-yr event
Inflow = 45.25 cfs @ 12.17 hrs, Volume= 3.133 af
Outflow = 45.25 cfs @ 12.17 hrs, Volume= 3.133 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach 1R: RUNOFF



Summary for Pond 2P: Underground Storage

Inflow Area = 6.173 ac, 74.26% Impervious, Inflow Depth = 6.47" for 100-yr event
Inflow = 66.20 cfs @ 12.12 hrs, Volume= 3.328 af
Outflow = 45.63 cfs @ 12.17 hrs, Volume= 3.328 af, Atten= 31%, Lag= 2.9 min
Discarded = 0.37 cfs @ 12.17 hrs, Volume= 0.195 af
Primary = 12.01 cfs @ 12.17 hrs, Volume= 2.556 af
Routed to Reach 1R : RUNOFF
Secondary = 33.25 cfs @ 12.17 hrs, Volume= 0.577 af
Routed to Reach 1R : RUNOFF

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 663.77' @ 12.17 hrs Surf.Area= 32,320 sf Storage= 38,286 cf

Plug-Flow detention time= 56.6 min calculated for 3.327 af (100% of inflow)
Center-of-Mass det. time= 56.7 min (806.2 - 749.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	654.50'	9,580 cf	**46.67'W x 120.17'L x 7.00'H Field A** 39,254 cf Overall - 15,304 cf Embedded = 23,951 cf x 40.0% Voids
#2A	655.50'	15,304 cf	**ADS_StormTech MC-4500 b +Cap** x 140 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 140 Chambers in 5 Rows Cap Storage= 39.5 cf x 2 x 5 rows = 395.0 cf
#3	655.50'	471 cf	**4.00'D x 7.50'H Vertical Cone/Cylinder** x 5
#4	662.50'	87,174 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
#5	655.50'	506 cf	**24.0" Round Pipe Storage 24"** L= 161.0' S= 0.0050 '/'
#6	655.50'	486 cf	**21.0" Round Pipe Storage 21"** -Impervious L= 202.0' S= 0.0074 '/'
#7	656.99'	435 cf	**18.0" Round Pipe Storage N 18"** L= 246.0' S= 0.0050 '/'
#8	655.56'	201 cf	**15.0" Round Pipe Storage SW 15"** -Impervious L= 164.0' S= 0.0050 '/'
#9	658.00'	440 cf	**4.00'D x 7.00'H Vertical Cone/Cylinder** x 5
#10	657.00'	528 cf	**4.00'D x 7.00'H Vertical Cone/Cylinder** x 6
		115,124 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
662.50	0	0	0
663.00	400	100	100
664.00	34,410	17,405	17,505
665.00	104,927	69,669	87,174

Device	Routing	Invert	Outlet Devices
#1	Primary	655.50'	**15.0" Round Culvert** L= 167.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 655.50' / 654.50' S= 0.0060 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Discarded	654.50'	**0.500 in/hr Exfiltration over Surface area**
#3	Secondary	662.85'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)** Head (feet) 0.00 0.15 0.50 1.00 Width (feet) 0.00 6.00 15.00 30.00

Discarded OutFlow Max=0.37 cfs @ 12.17 hrs HW=663.77' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.37 cfs)

Primary OutFlow Max=12.01 cfs @ 12.17 hrs HW=663.77' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 12.01 cfs @ 9.78 fps)

Secondary OutFlow Max=33.24 cfs @ 12.17 hrs HW=663.77' TW=0.00' (Dynamic Tailwater)
3=Custom Weir/Orifice (Weir Controls 33.24 cfs @ 2.56 fps)

Pond 2P: Underground Storage - Chamber Wizard Field A

Chamber Model = ADS_StormTech MC-4500 b +Cap (ADS StormTech® MC-4500 with cap volume)
Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.02'L = 106.5 cf
Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap
Cap Storage= 39.5 cf x 2 x 5 rows = 395.0 cf

100.0" Wide + 9.0" Spacing = 109.0" C-C Row Spacing

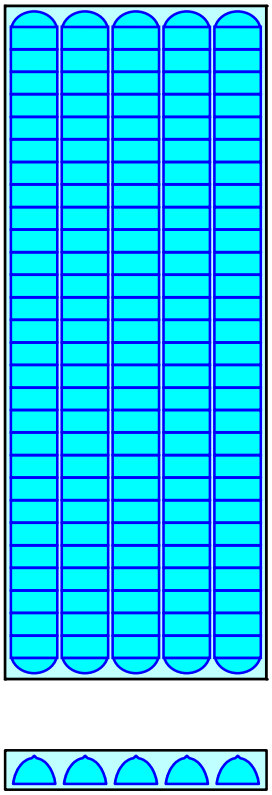
28 Chambers/Row x 4.02' Long +2.73' Cap Length x 2 = 118.17' Row Length +12.0" End Stone x 2 = 120.17' Base Length
5 Rows x 100.0" Wide + 9.0" Spacing x 4 + 12.0" Side Stone x 2 = 46.67' Base Width
12.0" Stone Base + 60.0" Chamber Height + 12.0" Stone Cover = 7.00' Field Height

140 Chambers x 106.5 cf + 39.5 cf Cap Volume x 2 x 5 Rows = 15,303.7 cf Chamber Storage

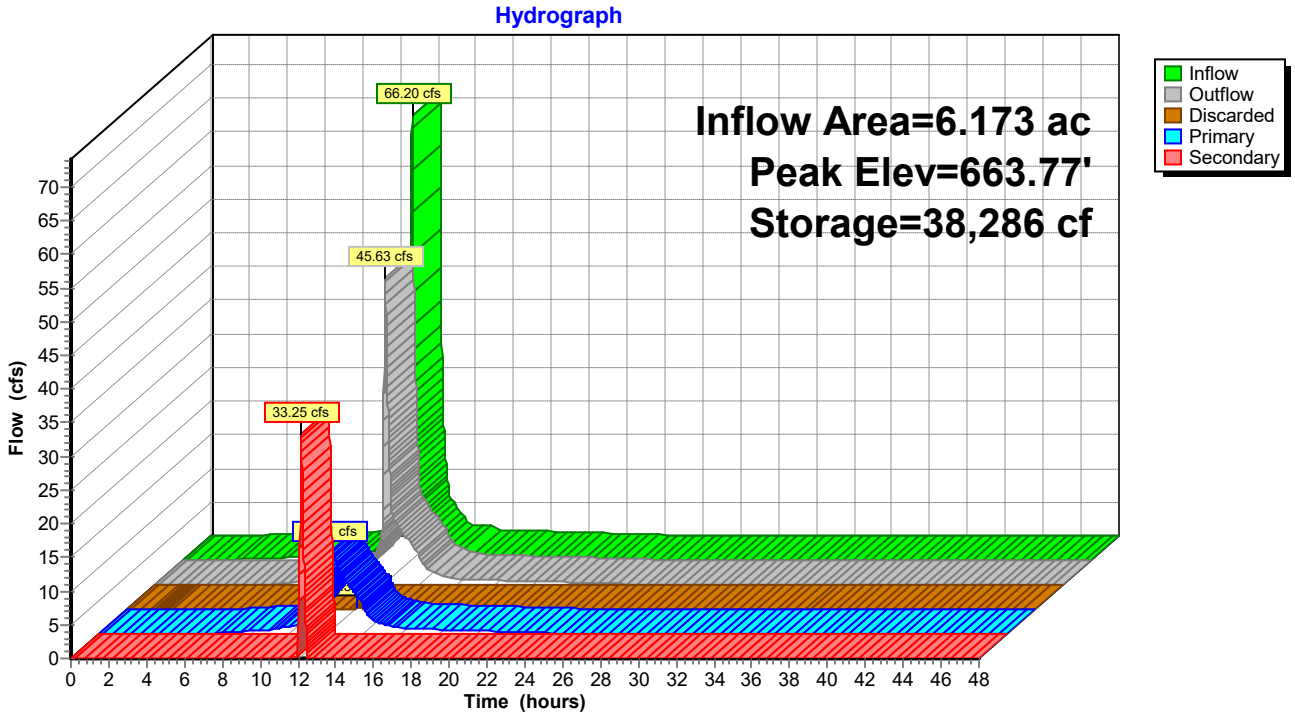
39,254.4 cf Field - 15,303.7 cf Chambers = 23,950.8 cf Stone x 40.0% Voids = 9,580.3 cf Stone Storage

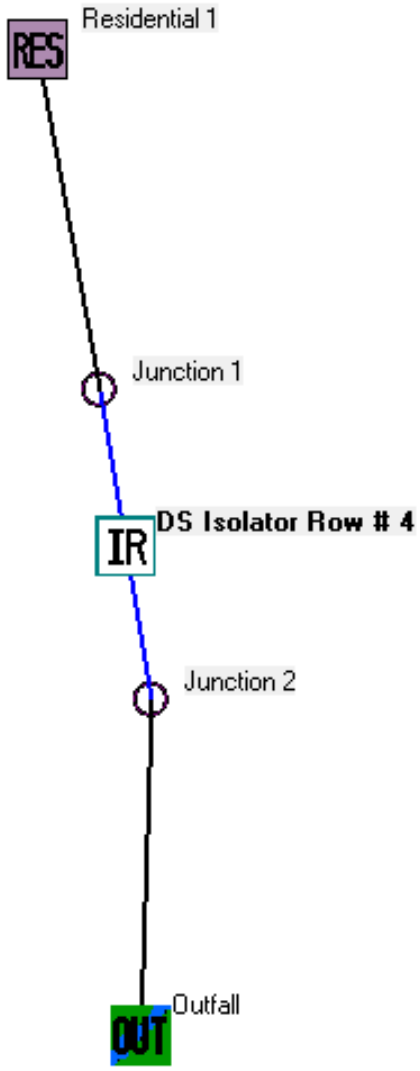
Chamber Storage + Stone Storage = 24,884.0 cf = 0.571 af
Overall Storage Efficiency = 63.4%
Overall System Size = 120.17' x 46.67' x 7.00'

140 Chambers
1,453.9 cy Field
887.1 cy Stone



Pond 2P: Underground Storage




Residential 1
RES
Junction 1
IR
DS Isolator Row # 4
Junction 2
Outfall
OUT

Data file name: \\isgfile1\Shared\Projects\25000 PROJ\25200-25299\25290 Kmart Redevelopment-La Crosse WI\25290 Civil-Survey\Civil Calcs\Stormwater\25290 Prop
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Minneapolis MN 1959.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/02/59 Study period ending date: 12/28/59
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 05-20-2022 Time: 12:00:44
Site information:

LU# 1 - Residential: Residential 1 Total area (ac): 6.173
1 - Roofs 1: 1.522 ac. Flat Connected PSD File: C:\WinSLAMM Files\NURP.cpz
13 - Paved Parking 1: 2.457 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.605 ac. Disconnected Moderately Compacted Silty PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 1.589 ac. Moderately Compacted Sandy PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Isolator Row CP# 1 (DS) - DS Isolator Row # 4
Total available system length (ft) = 120
Total available system width (ft) = 47
Available height from chamber base to surface (ft) = 8.00
Number of isolator rows = 1
Native soil infiltration rate (in/hr) = 0.50
Assumed stone porosity () = 0.40
Sizing option: Number of rows and row length
Number of rows = 5
Row length (ft) = 113
Selected Chamber Information
Chamber type: MC-4500
Chamber height (in): 60.00
Chamber width (in): 109.00
Chamber segment length (in): 48.30
Final storage volume (cf): 23665.8
Number of rows: 5
Row length (ft): 113.0
Total system length (ft): 565.0
Total system width (ft): 45.4
Number of chambers: 140
Overflow weir invert elevation (ft) = 5.00
Orifice 1 invert elevation (ft) = 1.96
Orifice 1 diameter (ft) = 2.00
Orifice 2 invert elevation (ft) = 0.00
Orifice 2 diameter (ft) = 0.00

SLAMM for Windows Version 10.4.1
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Data file name: \\isgfile1\Shared\Projects\25000 PROJ\25200-25299\25290 Kmart Redevelopment-La Crosse WI\25290 Civil-Survey\Civil Calcs\Stormwater\25290 Prop
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Minneapolis MN 1959.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations
Seed for random number generator: -42
Study period starting date: 01/02/59 Study period ending date: 12/28/59
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 01/02/59 Model Run End Date: 12/28/59
Date of run: 05-20-2022 Time of run: 12:00:06
Total Area Modeled (acres): 6.173
Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	360717	-	125.1	2817	-
Outfall Total with Controls:	353786	1.92%	66.93	1478	47.53%
Annualized Total After Outfall Controls:	358700			1499	

Post Construction Stormwater Management Maintenance Plan

Copper Rocks – La Crosse, Wisconsin

This document will provide direction for performing an inspection and any necessary maintenance of stormwater management practices. It is the responsibility of the property owner to perform the inspections of the stormwater management practices and to perform maintenance as needed. This maintenance plan provides a map of the site which identifies all applicable maintenance areas as well as an inspection checklist to be used by the inspector.

This plan shall remain onsite and be available for inspection when requested by the State of Wisconsin. When requested, the owner shall make available for inspection all maintenance records to the State of Wisconsin for the life of the system.

The Inspection Process

Below are the manufacturer's instructions and inspection checklists to be completed on a scheduled interval stated on each checklist by the property owner or an assigned subcontractor. Refer to the Site Map for item identification.

Perform Necessary Maintenance

After performing the inspection process, any required maintenance must be performed by the property owner or an assigned subcontractor within 30 calendar days.

During inspections, if 3 inches or more sediment is observed on the bottom of the isolator row, maintenance should be performed. Maintenance shall include jetting and vacuuming the accumulated sediment according to manufacturer recommendations. If standing water is observed in the underground infiltration system greater than 48 hours after a storm event, the system may have become clogged. Refer to manufacturer recommendations for further maintenance requirements to repair the system. Outlet structure and pipe shall be cleaned annually (at a minimum) and as needed to remove trash/debris and sediment to provide proper conveyance from the underground infiltration system. All removed material shall be properly disposed in a landfill in accordance with state and local laws.

All removed sediment must be disposed of according to applicable regulations.

It is assumed that maintenance will consist of a combination of labor and equipment use to accomplish tasks ranging from sediment removal to trash cleanup.

Additional Underground System Maintenance

After construction of the system and prior to operation beginning, a post installation inspection shall be performed by the owner/operator of the system to measure the invert and inspect the system prior to the accumulation of sediment. Adequate maintenance access shall be maintained to the underground system at all times. During inspections the sediment buildup shall be measured at each riser, inspection port, and cleanout location and if in any case the sediment buildup is greater than 20% of the pipe diameter, cleaning should be performed immediately. During inspections all manifolds, laterals, and outlet pipe should be inspected for sediment buildup, obstructions, damage or any other potential problems. When sediment removal is to take place is should be done using jetting and vacuuming according to manufacturer's recommendations. Manual removal should be avoided if at all possible. All applicable confined space entry procedures must be followed by all personal performing sediment removal or other system maintenance.

Vector Control

Eliminate all stagnant water and undesired ponding areas to prevent mosquito breeding. Eliminate all undesired vegetation from the site. Eliminate all potential tick breeding areas.

Contingency Plan in the Event of System Failure

In the event of plumbing failure, all stormwater would flow over land off the site before encroaching on the building. In the event of stormwater plumbing system failure, contingency plans for conveying

water and protecting the property include sand bagging, pumping, and earthen berms. In the event of standing water, the source of the standing water shall be determined and remedial steps shall be taken to eliminate the disturbance. Remedial methods shall not disturb or disrupt the integrity of each system component.

Record Keeping
It is the responsibility of the property owner to maintain accurate inspection and maintenance records. Inspection and maintenance records shall be kept on site and made available to the City of La Crosse upon request.

Annual Compliance Reporting
The City may request an annual report by which the property owner has up to 30 days to fulfill the request by the City.

City Inspection and Maintenance
If at any point the property owner falls behind on the required inspections or maintenance, the authority will perform an inspection at the cost of the property owner after sending a notice. If emergency maintenance is required and deemed necessary by the authority, the authority will perform the necessary maintenance at the property owner's cost. It is important to remember that the property owner is the party responsible for the inspection, maintenance, and the record keeping, and this responsibility should not be assumed to the authority.

StormTech
Detention • Retention • Water Quality
An ADS company

Isolator® Row O&M Manual







THE MOST **ADVANCED** NAME IN WATER MANAGEMENT SOLUTIONS™

ADS®

THE ISOLATOR® ROW

INTRODUCTION

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) removal and provide easy access for inspection and maintenance.

THE ISOLATOR ROW

The Isolator Row is a row of StormTech chambers, either SC-160LP, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-4500 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for settling and filtration of sediment as storm water rises in the Isolator Row and ultimately passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC- 310-3 and SC-740 models) allow storm water to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the storage areas of the adjacent stone and chambers from sediment accumulation.

Two different fabrics are used for the Isolator Row. A woven geotextile fabric is placed between the stone and the Isolator Row chambers. The tough geotextile provides a media for storm water filtration and provides a durable surface for maintenance operations. It is also designed to prevent scour of the underlying stone and remain intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the perforations in the sidewall of the chamber. The non-woven fabric is not required over the SC-160LP, DC-780, MC-3500 or MC-4500 models as these chambers do not have perforated side walls.

The Isolator Row is typically designed to capture the “first flush” and offers the versatility to be sized on a volume basis or flow rate basis. An upstream manhole not only provides access to the Isolator Row but typically includes a high flow weir such that storm water flowrates or volumes that exceed the capacity of the Isolator Row overtop the over flow weir and discharge through a manifold to the other chambers.

The Isolator Row may also be part of a treatment train. By treating storm water prior to entry into the chamber system, the service life can be extended and pollutants such as hydrocarbons can be captured. Pre-treatment best management practices can be as simple as deep sump catch basins, oil-water separators or can be innovative storm water treatment devices. The design of the treatment train and selection of pretreatment devices by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, the Isolator Row is recommended by StormTech as an effective means to minimize maintenance requirements and maintenance costs.

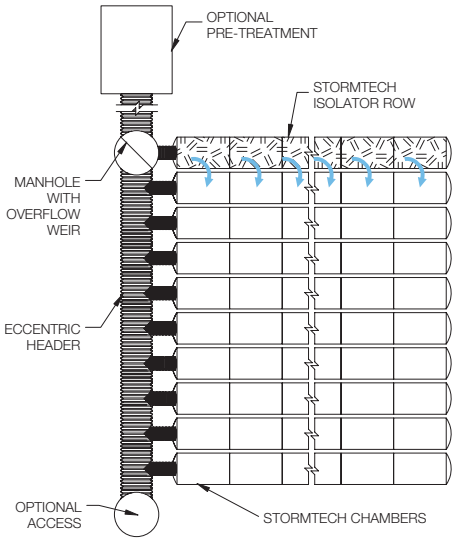
Note: See the StormTech Design Manual for detailed information on designing inlets for a StormTech system, including the Isolator Row.



Looking down the Isolator Row from the manhole opening, woven geotextile is shown between the chamber and stone base.



StormTech Isolator Row with Overflow Spillway (not to scale)





ISOLATOR ROW INSPECTION/MAINTENANCE

INSPECTION

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

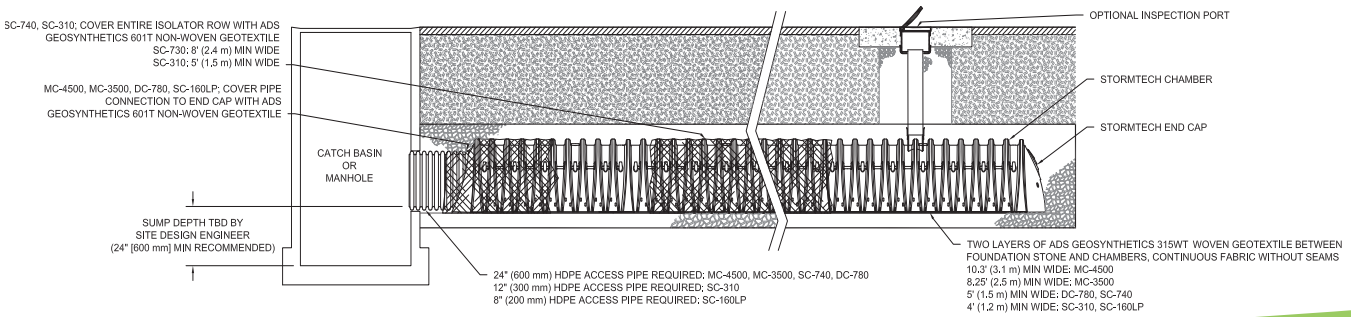
MAINTENANCE

The Isolator Row was designed to reduce the cost of periodic maintenance. By "isolating" sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45" are best. Most JetVac reels have 400 feet of hose allowing maintenance of an Isolator Row up to 50 chambers long. **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**

StormTech Isolator Row (not to scale)

Note: Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-4500 chamber models and is not required over the entire Isolator Row.



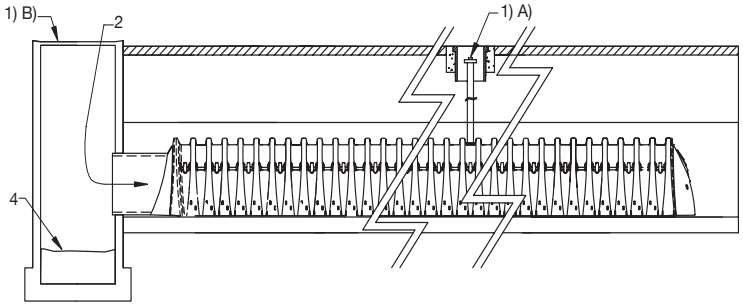
ISOLATOR ROW STEP BY STEP MAINTENANCE PROCEDURES

STEP 1
Inspect Isolator Row for sediment.
- A) Inspection ports (if present)
  - i. Remove lid from floor box frame
  - ii. Remove cap from inspection riser
  - iii. Using a flashlight and stadia rod,measure depth of sediment and record results on maintenance log.
  - iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
- B) All Isolator Rows
  - i. Remove cover from manhole at upstream end of Isolator Row
  - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
    1. Mirrors on poles or cameras may be used to avoid a confined space entry
    2. Follow OSHA regulations for confined space entry if entering manhole
  - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

STEP 2
Clean out Isolator Row using the JetVac process.
- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

STEP 3
Replace all caps, lids and covers, record observations and actions.

STEP 4
Inspect & clean catch basins and manholes upstream of the StormTech system.



SAMPLE MAINTENANCE LOG

Date	Stadia Rod Readings		Sediment Depth (1)–(2)	Observations/Actions	Inspector
	Fixed point to chamber bottom (1)	Fixed point to top of sediment (2)			
3/15/11	6.3 ft	none		New installation. Fixed point is CI frame at grade	DJM
9/24/11		6.2	0.1 ft	Some grit felt	SM
6/20/13		5.8	0.5 ft	Mucky feel, debris visible in manhole and in Isolator Row, maintenance due	NV
7/7/13	6.3 ft		0	System jetted and vacuumed	DJM

ADS "Terms and Conditions of Sale" are available on the ADS website, www.ads-pipe.com
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StormTech® Detention • Retention • Water Quality
A division of ADS®

Advanced Drainage Systems, Inc.
4640 Trueman Blvd., Hilliard, OH 43026
1-800-821-6710 www.ads-pipe.com

Maintenance Schedule and Inspection Checklist Information

Facility ID Copper Rocks – La Crosse, WI

Location 2415 State Road Lacrosse, WI

Inspector(s) _____

Date _____

Time _____

Party/Department Responsible for Maintenance: _____

_____

_____

Contact(s): _____

_____

_____

Phone Number(s): _____

_____

Email: _____

_____

Mailing Address: _____

_____

_____

BMP Inspection Schedule and Checklist

A. Inlets
1 = Good Condition
2 = Acceptable, Item on Watch
3 = Item Requires Maintenance Within the Year
4 = Failed Item, Requires Immediate Maintenance

Note: All items associated with Pretreatment shall be inspected twice a year.
Once in early Spring and once in late Fall.

	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042
1. Structural deficiencies of concrete ring reinforcement? Spalling?																					
2. Damage to castings?																					
3. Sediment build up?																					
4. Free of debris?																					

B. ADS Stormtech Chambers
1 = Good Condition
2 = Acceptable, Item on Watch
3 = Item Requires Maintenance Within the Year
4 = Failed Item, Requires Immediate Maintenance

Note: All items associated with the Facility shall be inspected quarterly or as otherwise noted.

	2022	2022	2023	2023	2024	2024	2025	2025	2025	2026	2027	2027	2028	2028	2029	2029	2030	2030	2031	2031	2032
1. Maintenance access to facility																					
2. Excessive sediment accumulation																					
4. Is there evidence of pollution entering the system? Y/N. Where?																					
5. Outlets																					
a. Maintenance access to outlet																					
b. Outlet condition																					
d. Trash/debris accumulation (Remove as quickly as possible)																					

C. Miscellaneous
1 = Good Condition
2 = Acceptable, Item on Watch
3 = Item Requires Maintenance Within the Year
4 = Failed Item, Requires Immediate Maintenance

Note: All miscellaneous items shall be inspected annually or as otherwise noted.

	2022	2022	2023	2023	2024	2024	2025	2025	2025	2026	2027	2027	2028	2028	2029	2029	2030	2030	2031	2031	2032
1. Complaints from local residents																					
2. Pest problems																					
3. Adequate safety signage																					

BMP Inspection Schedule and Checklist

ISG

Inspector's Summary

BMP Inspection Schedule and Checklist

ISG

Photographs	
Photo ID	Description
1.	
2.	
3.	
4.	
5.	
6.	
7.	
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9.	
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19.	
20.	

Sketch of Facility

Memorandum

To: Yuri Nasonovs - City of La Crosse

From: Kristopher Roppe, PE

Date: May 20, 2022

Subject: Copper Rocks Sanitary Sewer Pipe Sizing

INTRODUCTION

Sanitary sewer pipe sizing calculations have been prepared to check the 8 inch pipe size for sanitary sewer serving the proposed Copper Rocks development. Sanitary sewer flow calculations have been completed to meet the regulations of Wisconsin Administrative Code NR 110.

ASSUMPTIONS

The following assumptions were used to compute flows and minimum pipe diameters.

- 3 - 11 unit townhomes with a total of 57 bedrooms
- 1 – 52 unit buildings with a total of 64 bedrooms
- 1 – 72 unit buildings with a total of 96 bedrooms
- 1 – 59 unit buildings with a total of 75 bedrooms
- Flows from commercial uses have been established using 13 gallons per day per employee or 20 gallons per day per seat depending on proposed use
- The proposed storm sewer system is separate from the proposed sanitary sewer system.
- Water usage is assumed to be 68 gallons per person per day (p) based on the City of Milwaukee standard.
- The population density (D) is assumed to be 1.5 people per bedroom (186).

CALCULATIONS

Using the following equation, an average daily flow (Q) was computed to be 33,899 gallons per day (gpd).

$$Q = p * D * A$$

Inflating this average flow by 400% (per Wis Admin Code NR 110.13 for submains and branches), a peak flow (Qpeak) was calculated to be 135,596 gpd (0.21 cfs). Designing for full pipe conditions, the following equation was used.

$$D = 1.299\left(Q * \frac{n}{S^{\frac{1}{2}}}\right)^{\frac{3}{8}}, where\ Q = Q_{peak}, n = 0.012, and\ S = 0.004.$$

D = 4.7 inches (use 6 inches)

CONCLUSIONS

Since the calculated pipe diameter of 4 inches is less than the required minimum pipe diameter of 8 inches, a 8-inch pipe was used for the private sanitary sewer main. A spreadsheet with breakdown of calculations is attached.

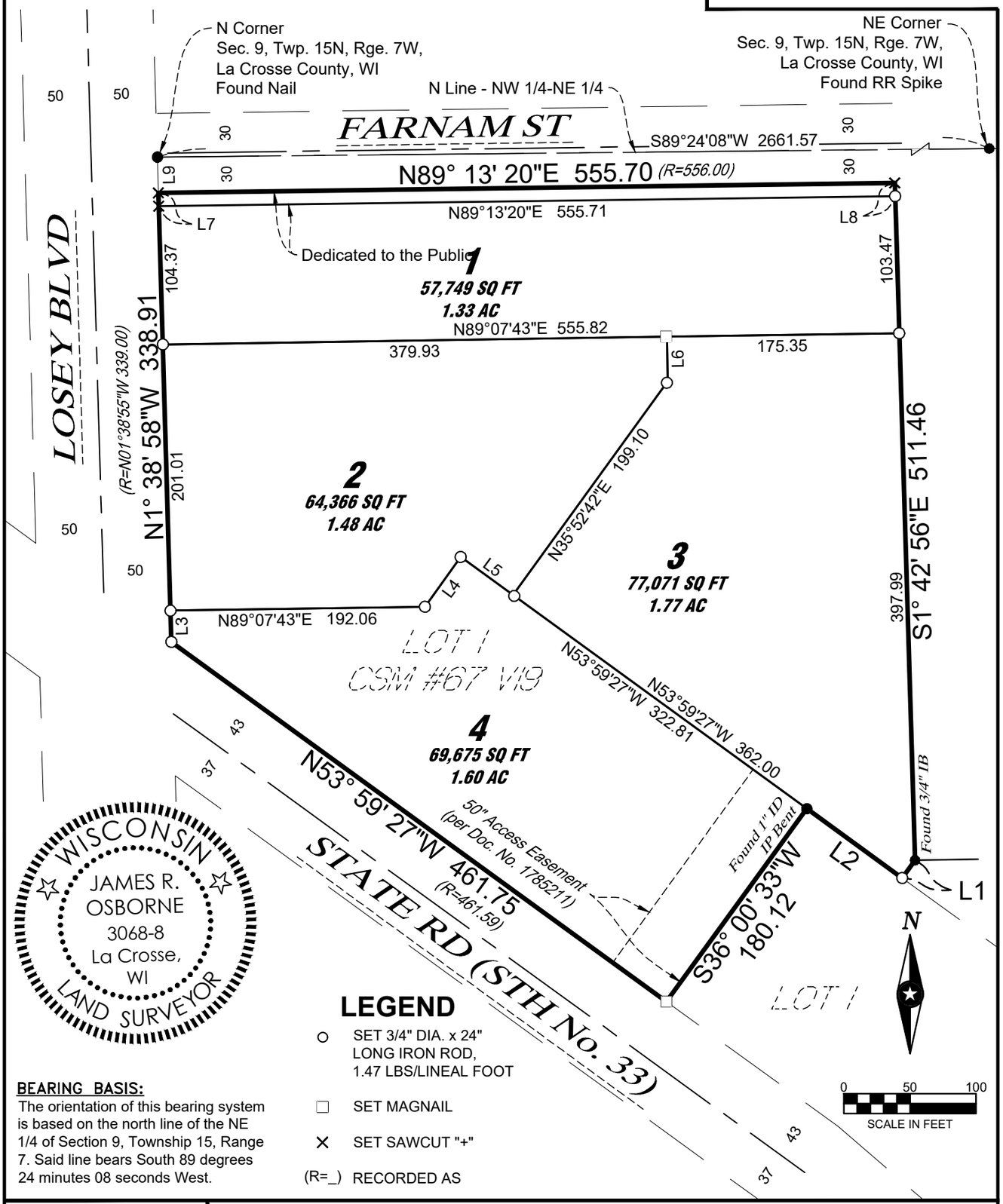
Copper Rocks Sanitary Flow Summary

		Area (sf) / # of Units	Number of Bedrooms	Number of People	Flow (gpd)	Notes
LOT 1 (3) 11 unit Townhomes	Studio	2	2	3	204	68 gpd per capita (typ)
	1 BR	3	3	4.5	306	
	2 BR	4	8	12	816	
	3 BR	2	6	9	612	
				Subtotal	1,938	Per building (3 buildings total)
				Total	**5,814**	
LOT 4 SOUTH BUILDING	Residential - Studio	11	11	16.5	1,122	
	Residential - 1 BR	32	32	48	3,264	
	Residential - 2 BR	16	32	48	3,264	
	Brewery	5610	80	Seats	1,600	20 gpd per seat
	Restaurant	2640	60	Seats	1,200	20 gpd per seat
	TBD	5520		20	260	13 gpd per employee
				Subtotal	**10,710**	
LOT 2 WEST BUILDING	Tenant Space (TBD)	4364		15	195	13 gpd per employee
	Residential - Studio	24	24	36	2,448	
	Residential - 1 BR	24	24	36	2,448	
	Residential - 2 BR	24	48	72	4,896	
	Rivertown Dental	6667		20	260	13 gpd per employee
				Subtotal	**10,247**	
LOT 3 EAST BUILDING	Residential - Studio	16	16	24	1,632	
	Residential - 1 BR	24	24	36	2,448	
	Residential - 2 BR	12	24	36	2,448	
	Coffee Shop	2018	30	Seats	600	20 gpd per seat
	Activity Center	9471			0	* For Resident Use Only, no additional flow
				Subtotal	**7,128**	
			Total Daily Flow:		**33,899**	
			Peak Daily Flow:		**135,596**	400% of Average
			Peak Flow (GPM):		**94.16**	
			Peak Flow (CFS):		**0.21**	

Minimum Pipe Diameter Required (in):	**4.7**

CERTIFIED SURVEY MAP

LOT 1, CERTIFIED SURVEY MAP NUMBER 67, VOLUME 19, DOCUMENT NUMBER 1761262, LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9 , TOWNSHIP 15 NORTH, RANGE 7 WEST, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN.



WISCONSIN
JAMES R. OSBORNE
3068-8
La Crosse, WI
LAND SURVEYOR

LEGEND

- ○ SET 3/4" DIA. x 24" LONG IRON ROD, 1.47 LBS/LINEAL FOOT
- □ SET MAGNAIL
- × SET SAWCUT "+"
- (R=_) RECORDED AS

BEARING BASIS:
The orientation of this bearing system is based on the north line of the NE 1/4 of Section 9, Township 15, Range 7. Said line bears South 89 degrees 24 minutes 08 seconds West.

CERTIFIED SURVEY MAP

ISG

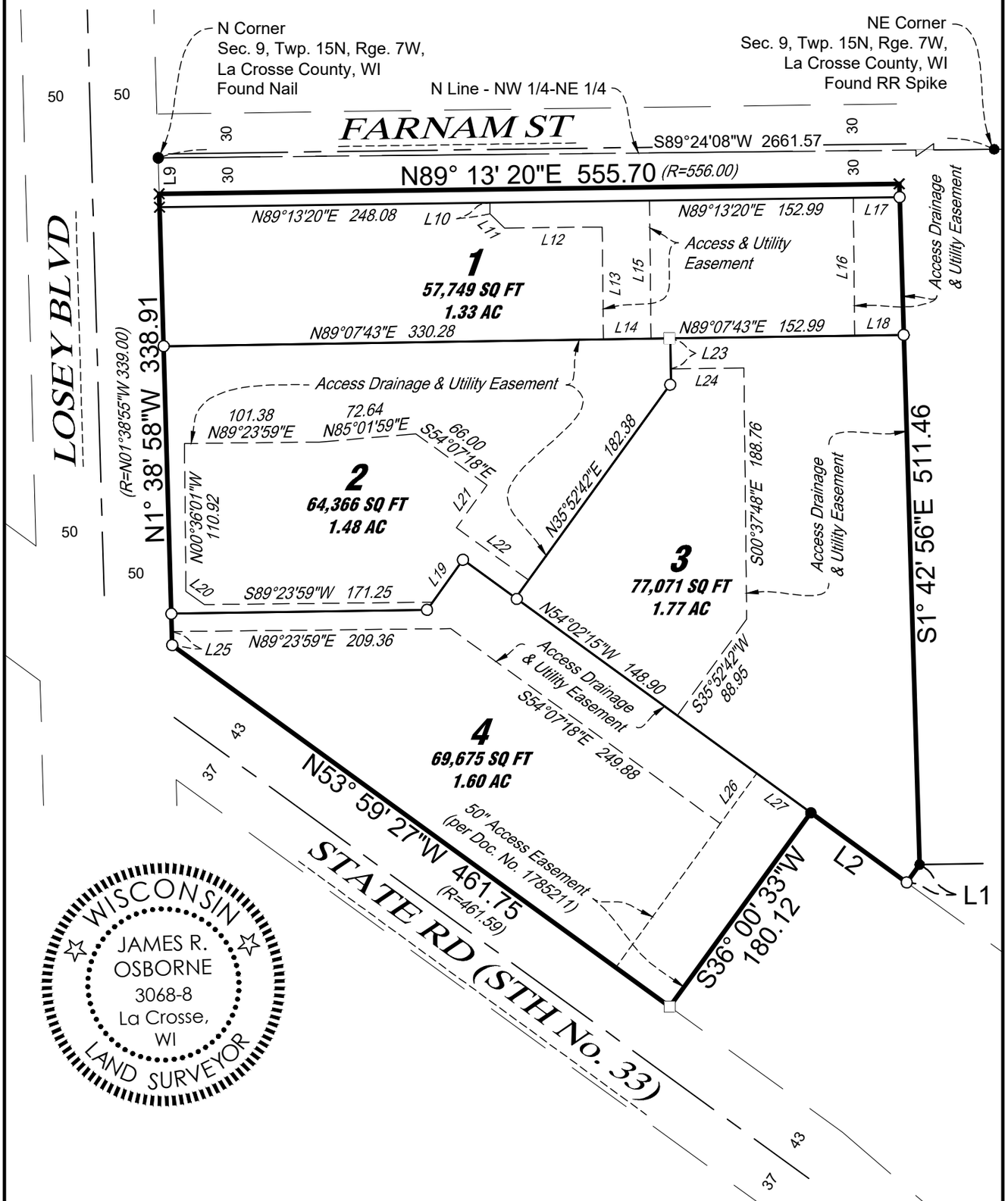
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PROJECT NO.:	21-25290
FILE NAME:	25290 CSM
DRAWN BY:	JRO
REVISED:	

SHEET 1 OF 3 SHEETS

CERTIFIED SURVEY MAP

LOT 1, CERTIFIED SURVEY MAP NUMBER 67, VOLUME 19, DOCUMENT NUMBER 1761262, LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9 , TOWNSHIP 15 NORTH, RANGE 7 WEST, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN.



CERTIFIED SURVEY MAP

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PROJECT NO.:	21-25290
FILE NAME:	25290 CSM
DRAWN BY:	JRO
REVISED:	

SHEET 2 OF 3 SHEETS

CERTIFIED SURVEY MAP

LOT 1, CERTIFIED SURVEY MAP NUMBER 67, VOLUME 19, DOCUMENT NUMBER 1761262, LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9 , TOWNSHIP 15 NORTH, RANGE 7 WEST, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN.

LAND DESCRIPTION:

Lot 1 of Certified Survey Map Number 67, Volume 19, Document Number 1761262 located in the Northwest Quarter of the Northeast Quarter of Section 9, Township 15 North, Range 7 West, City of La Crosse, La Crosse County, Wisconsin.

CERTIFICATION:

I, James R. Osborne, Professional Land Surveyor, hereby certify that I have surveyed and mapped the lands described hereon, and that this map is a representation thereof, to the best of my knowledge and that I have complied with Chapter 236.34 of the Wisconsin State Statutes as per agreement with MKB Copper Rocks LLC who has requested such survey.

CITY OF LA CROSSE APPROVAL CERTIFICATE

Resolved that this Certified Survey Map is hereby approved by the City of La Crosse.

Dated this_____day of _____, 20__.

_____
City Clerk

OWNERS CERTIFICATE

As owner, I hereby certify that I caused the land described herein to be surveyed, divided, mapped and dedicated as represented on the Certified Survey Map. I also certify that this Certified Survey Map is required to be submitted to the following for approval, the City of La Crosse.

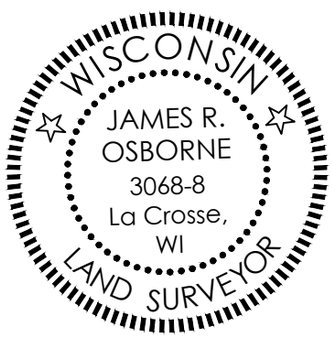
Dated this_____day of _____, 20__.

_____
Name Title

State of Wisconsin)
County of _____) SS
Personally came before me this _____ day of _____, 20__, the above named Owner to me known to be the same person who executed the foregoing instrument and acknowledged the same.

(Notary Seal)_____ Notary Public, _____ County, Wisconsin
My commission expires:_____

NOTE: Field work was completed on February 21, 2022.



LINE TABLE

LINE #	LENGTH	DIRECTION
L1	16.41	S36°00'33"W
L2	89.18	N53°59'27"W
L3	23.52	N1°38'58"W
L4	46.23	N35°36'26"E
L5	48.83	S53°59'27"E
L6	33.59	N0°52'17"W
L7	10.00	N1°38'58"W
L8	10.00	S1°42'56"E
L9	26.95	S1°38'58"E
L10	8.26	S0°36'01"E
L11	15.36	S45°36'01"E
L12	73.25	N89°23'59"E
L13	84.45	S0°36'01"E
L14	35.75	N89°07'43"E
L15	103.76	N0°36'01"W
L16	103.51	N0°36'01"W
L17	34.77	N89°13'20"E
L18	36.79	N89°07'43"E
L19	39.17	S35°36'26"W
L20	17.18	N54°07'18"W
L21	39.36	S35°52'42"W
L22	67.01	S54°07'18"E
L23	22.80	S0°52'17"E
L24	55.00	N89°23'59"E
L25	10.13	N1°38'58"W
L26	46.68	N36°00'33"E
L27	50.00	S53°59'27"E

ISG

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CERTIFIED SURVEY MAP

PROJECT NO.:	21-25290
FILE NAME:	25290 CSM
DRAWN BY:	JRO
REVISED:	

SHEET 3 OF 3 SHEETS

COPPER ROCKS DEVELOPMENT

LA CROSSE, WISCONSIN

ISG PROJECT # 21-25290

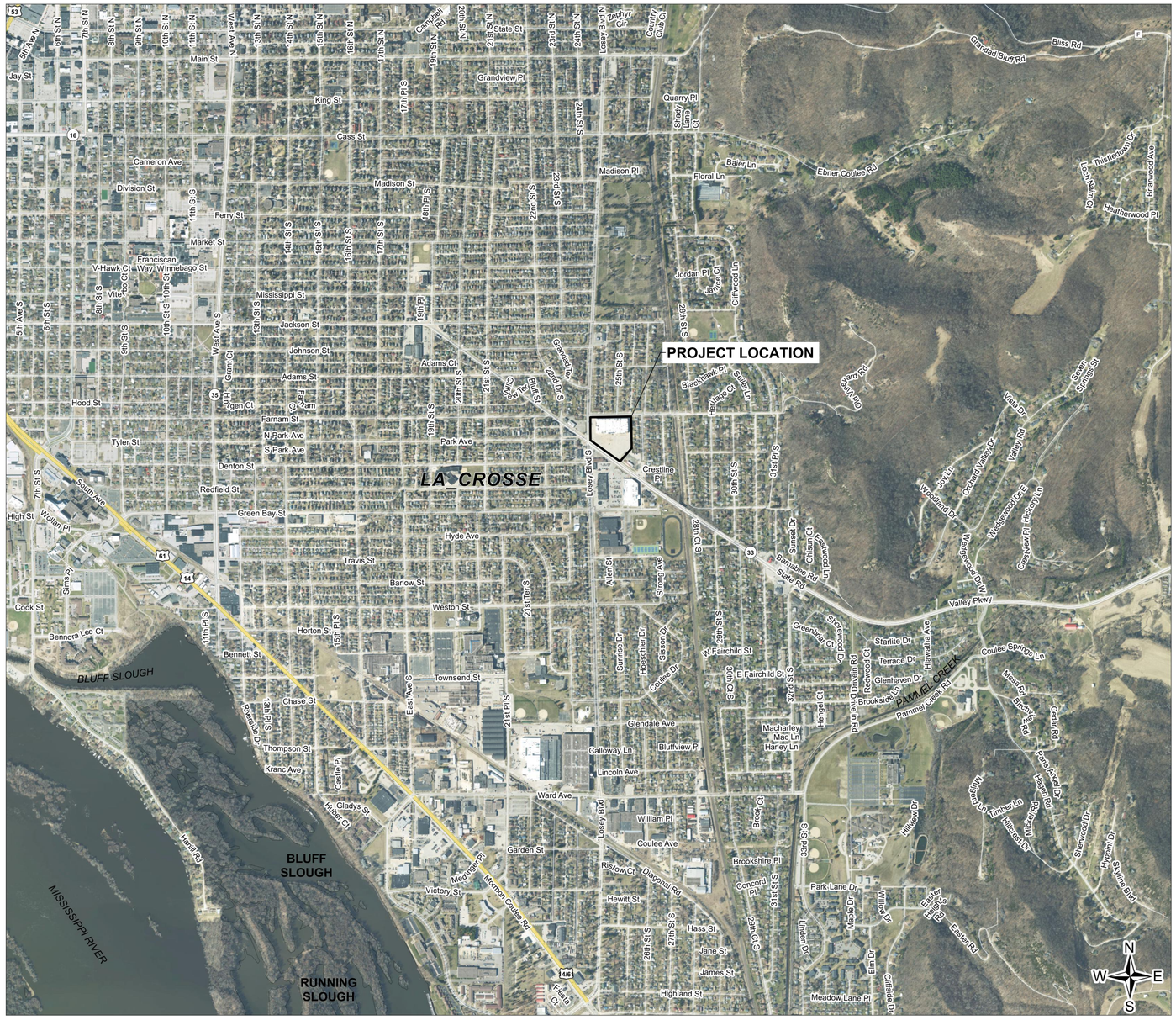
LEGEND

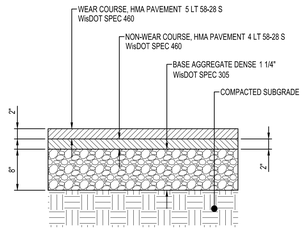
EXISTING

- CITY LIMITS
- SECTION LINE
- QUARTER SECTION LINE
- RIGHT OF WAY LINE
- PROPERTY / LOTLINE
- EASEMENT LINE
- ACCESS CONTROL
- WATER EDGE
- WETLAND BOUNDARY
- WETLAND / MARSH
- FENCE LINE
- CULVERT
- STORM SEWER
- SANITARY SEWER
- SANITARY SEWER FORCEMAIN
- WATER
- GAS
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- UNDERGROUND FIBER OPTIC
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- MANHOLE/STRUCTURE
- CATCH BASIN
- HYDRANT
- VALVE
- CURB STOP
- POWER POLE
- UTILITY PEDESTAL / CABINET

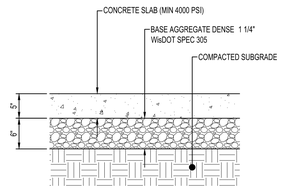
PROPOSED

- LOT LINE
- RIGHT OF WAY
- EASEMENT
- CULVERT
- STORM SEWER
- STORM SEWER (PIPE WIDTH)
- SANITARY SEWER
- SANITARY SEWER (PIPE WIDTH)
- WATER
- GAS
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TV
- CONTOUR
- MANHOLE (STORM, SANITARY)
- CATCH BASIN
- HYDRANT
- VALVE

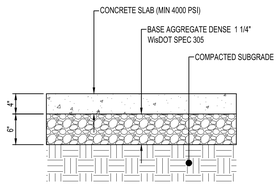

PROJECT LOCATION
LA CROSSE
BLUFF SLOUGH
BLUFF SLOUGH
RUNNING SLOUGH
MISSISSIPPI RIVER
PAMMEL CREEK
Main St
Jay St
King St
Cass St
Cameron Ave
Division St
Ferry St
Market St
Madison St
Madison Pl
Grandview Pl
Quarry Pl
Floral Ln
Baier Ln
Ebner Coulee Rd
Grandad Bluff Rd
Bliss Rd
Franciscan Way
Winnebago St
V-Hawk Ct
Mississippi St
Jackson St
Johnson St
Adams St
Adams Ct
Hood St
Tyler St
Farnam St
N Park Ave
S Park Ave
Park Ave
Denton St
Redfield St
Green Bay St
Hyde Ave
Travis St
Barlow St
Weston St
Horton St
Bennett St
Townsend St
Chase St
Thompson St
Kranc Ave
Glendale Ave
Calloway Ln
Bluffview Pl
Lincoln Ave
Ward Ave
William Pl
Coulee Ave
Garden St
Victory St
Hewitt St
Hass St
James St
Highland St
Meadow Lane Pl
Park Lane Dr
Brookshire Pl
Rustow Ct
Diagonal Rd
Meadow Rd
Mormon Coulee Rd
Hamm Rd
Gladys St
Cook St
Bennett Lee Ct
High St
Wollan Pl
Sims Pl
Redfield St
Jay Ln
Jay Ct
Driftwood Ln
Jordan Pl
Blackhawk Pl
Blackhawk Ct
Sunset Ln
Hillcrest Ct
Crestline Pl
Losey Blvd S
Losey Blvd N
Zephyr Cir
Cranby Cir
Shady Lane Ct
Thistledown Ct
Quail Run Ln
Briarwood Ave
Heatherwood Pl
Valley Pkwy
Valley Rd
Vista Dr
Susan Stuart St
Sunset Dr
Olson Ct
Emerald Ln
Banzhaf Rd
State Rd
Woodland Dr
Grandad Valley Dr
Woodcrest Dr E
Hudson Ln
Chesterton Pl
Hickory Ln
Starlite Dr
Terrace Dr
Glenhaven Dr
Brookside Ln
Couleecrest Dr
Redwood Ct
Driven Rd
Greenbriar Ct
Hiawatha Ave
Couleeview Dr
Couleecrest Ln
Coulee Springs Ln
Mesa Rd
Bluff View Rd
Cedar Rd
Pauls Alvel Dr
Maeon Rd
Timberlane Dr
Timberlane Ln
Sherwood Dr
Hycrest Dr
Skyline Blvd
Easter Heights Dr
Easter Rd
Maple Dr
Willow Pl
Elm Dr
Carlisle Dr
Lindsey Dr
Macharley Mac Ln
Harley Ln
Hangert Ct
Hillside Dr
Back Ct
Sunset Ct
Alan St
Strong Ave
Sunrise Dr
Hoechler Dr
Sisson Ct
Coulee Dr
Rivera Dr
Castle Pl
Hunter Pl
Grand Ct
Tyden Ct
Olson Pl
Blair St
Grandview Ter
Meadow Ln
Creek Ct
Meadow Ln
Meadow Ln
Meadow Ln



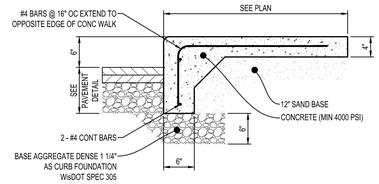
STANDARD ASPHALT PAVEMENT
NTS



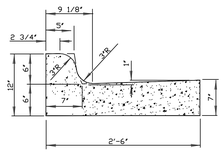
STANDARD CONCRETE PAVEMENT
NTS



STANDARD CONCRETE WALK
NTS

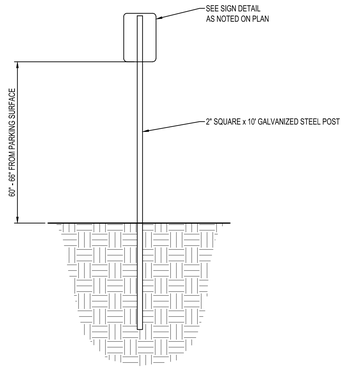


TURN DOWN CONCRETE WALK
NTS

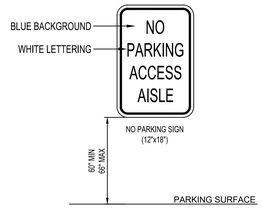


STANDARD CURB & GUTTER SECTION

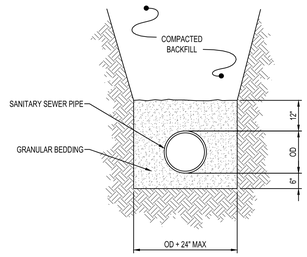
NOTE:
WITH REFERENCE TO SAWING OF CONTRACTION JOINTS ON SLIP FORM CURB & GUTTER, & CURB, PAGE 9.3, STANDARD SPEC'S THE SAW CUT SHALL BE A MINIMUM 1/8" WIDE X 1" DEEP.



SIGN POST
NTS



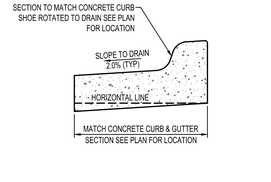
NO PARKING ACCESS AISLE SIGN
NTS



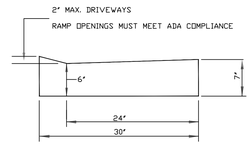
NOTES:

GRANULAR BEDDING AND ENCASEMENT FOR SANITARY SEWER PIPES SHALL BE INCIDENTAL TO CONSTRUCTION

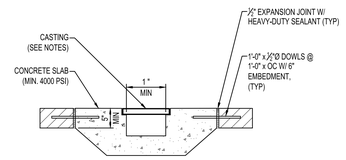
PIPE BEDDING SANITARY SEWER
NTS



REVERSE PITCH CONCRETE CURB & GUTTER
NTS



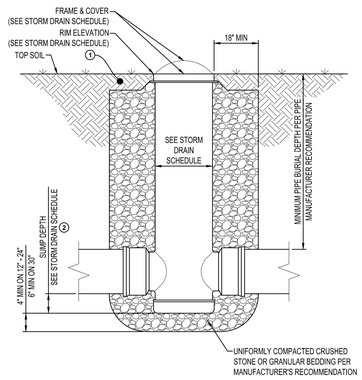
MOUNTABLE CURB SECTION



NOTES:

CASTING	=	NEENAH R-4990-CX
GRATE	=	TYPE C

CONCRETE TRENCH DRAIN
NTS

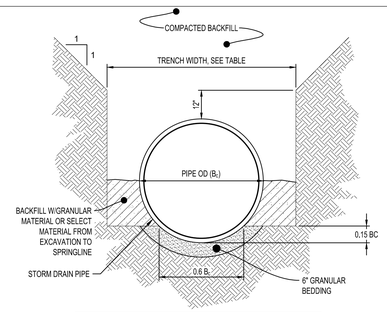


NOTES:

① DESIGN SHOULD ACCOUNT FOR ROOT DEPTH TO ALLOW TURF TO GROW AND PREVENT EROSION AROUND GRATE SO THAT HAZARDS TO DO NOT FORM

② 6" MIN ON 8" - 24" DRAIN BASIN, 10" MIN ON 30" DRAIN BASIN. VERIFY WITH MANUFACTURER'S RECOMMENDATIONS.

DRAIN BASIN
NTS

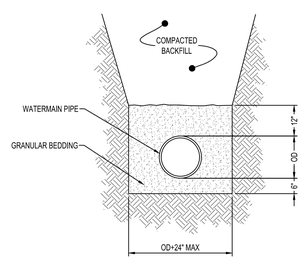


TRENCH WIDTH	
PIPE Ø	TRENCH WIDTH
36" OR LESS	B_c + 24"
42" TO 54"	1.5 x B_c
60" OR OVER	B_c + 36"

NOTES:

GRANULAR BEDDING AND BACKFILL FOR STORM DRAIN PIPES SHALL BE INCIDENTAL TO STORM DRAIN CONSTRUCTION

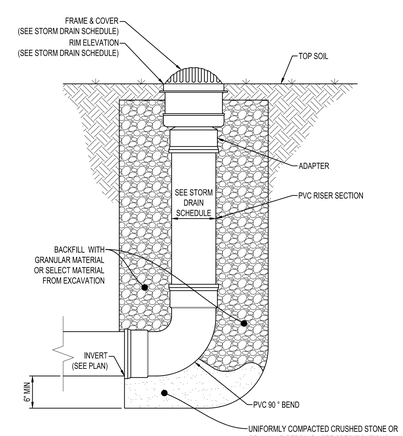
REINFORCED CONCRETE STORM DRAIN PIPE BEDDING
NTS



NOTE:

GRANULAR BEDDING AND ENCASEMENT FOR WATERMAIN PIPES SHALL BE INCIDENTAL TO CONSTRUCTION

PIPE BEDDING WATER MAIN
NTS



INLINE DRAIN
NTS

PLOT DATE: 5/20/2022 3:53 PM

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05/20/2022

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

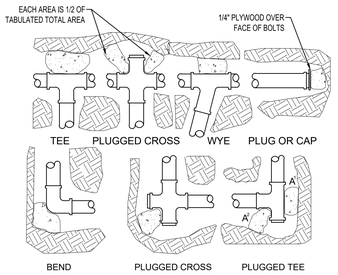
PROJECT NO.	21-25290
FILE NAME	25290 C0-DETAILS
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

SITE DETAILS

SHEET

C0-10



THRUST BLOCK BEARING (SF) TABLE

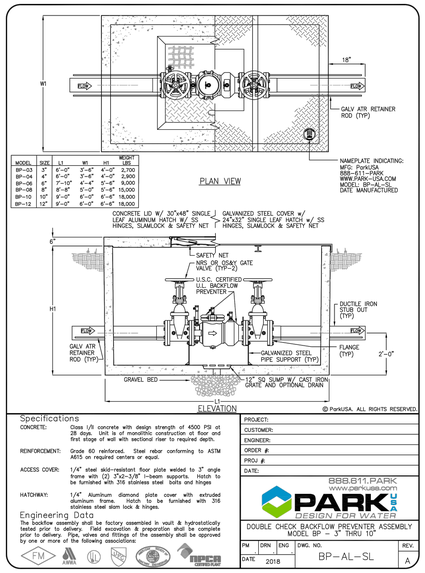
NOMINAL FITTING SIZE INCHES	TEE,WYE PLUG OR CAP	90 BEND PLUGGED CROSS	TEE PLUGGED ON RUN A[1]	TEE PLUGGED ON RUN A[2]	45° BEND	22 ½° BEND	11 ¼° BEND
4	1.0	1.4	1.9	1.4	1.0		
6	2.1	3.0	4.3	3.0	1.6	1.0	
8	3.8	5.3	7.6	5.4	2.9	1.5	1.0
10	5.9	8.4	11.8	8.4	4.6	2.6	1.2
12	8.5	12.0	17.0	12.0	6.6	3.4	1.7
14	11.5	16.3	23.0	16.3	8.9	4.6	2.3
16	15.0	21.3	30.0	21.3	11.6	6.0	3.0
18	19.0	27.0	38.0	27.0	14.6	7.6	3.8
20	23.5	33.3	47.0	33.3	18.1	9.4	4.7
24	34.0	48.0	68.0	48.0	26.2	13.6	6.8

NOTES

1. CONCRETE THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH
2. KEEP CONCRETE CLEAR OF JOINT AND ACCESSORIES
3. IF NOT SHOWN ON PLANS, REQUIRED BEARING AREAS AT FITTING SHALL BE AS INDICATED ABOVE, ADJUST IF NECESSARY, TO CONFORM TO THE TEST PRESSURE(S) AND ALLOWABLE SOIL BEARING STRESS (ES)
4. BEARING AREAS AND SPECIAL BLOCKING DETAILS SHOWN ON PLANS TAKE PRECEDENCE OVER BEARING AREAS AND BLOCKING DETAILS SHOWN ON THIS STANDARD DETAIL
5. ABOVE BEARING AREAS BASED ON TEST PRESSURE OF 150 PSI AND AN ALLOWABLE SOIL BEARING STRESS OF 2000 LBS PER SQ.FT. TO COMPUTE BEARING AREAS FOR DIFFERENT TEST PRESSURES AND SOIL BEARING USE THE FOLLOWING EQUATION: BEARING AREA=TEST PRESSURE/150x12000/SOIL BEARING STRESS x TABLE VALUE

WATERMAIN THRUST BLOCKING

NTS



Specifications

CONCRETE: Class I/II concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectional riser to required depth.

REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

ACCESS COVER: 1/4" steel skid-resistant floor plate welded to 3" angle frame with (2) 3"x2—3/8" I—beam supports. Hatch to be furnished with 316 stainless steel bolts and hinges

HATCHWAY: 1/4" Aluminum diamond plate cover with extruded aluminum frame. Hatch to be furnished with 316 stainless steel slam lock & hinges.

Engineering Data

The backflow assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:

FM ASSE IAPMO NSF IPEX

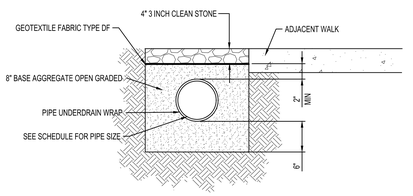
PROJECT:	
CUSTOMER:	
ENGINEER:	
ORDER #:	
PROJ #:	
DATE:	

BBB.611.PARK www.parkusa.com

PARK USA DESIGN FOR WATER

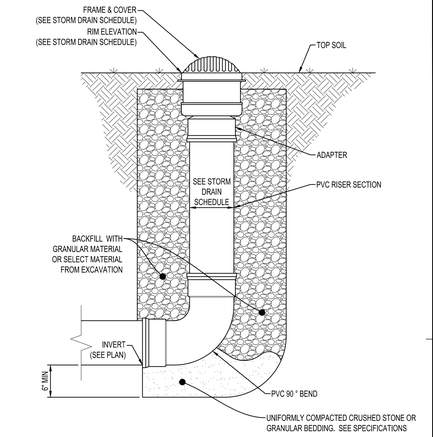
DOUBLE CHECK BACKFLOW PREVENTER ASSEMBLY MODEL BP — 3" THRU 10"

PM	DRN	ENG	DWG. NO.	REV.
DATE 2018			BP—AL—SL	A



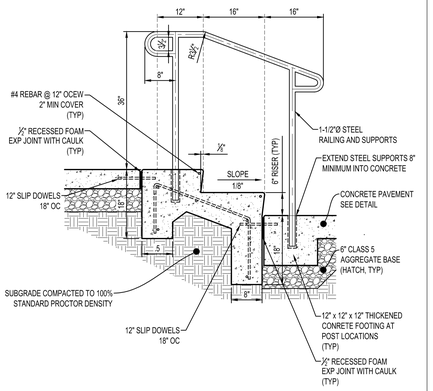
ROCK LANDSCAPING WITH UNDERDRAIN DETAIL

NTS SD990



INLINE DRAIN

NTS

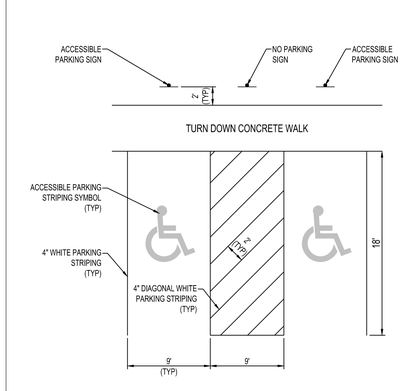


NOTES:

ALL COMPONENTS OF RAILING AND SUPPORTS SHALL BE SHOP PRIMED AND POWDER COATED. COORDINATE COLOR WITH OWNER.

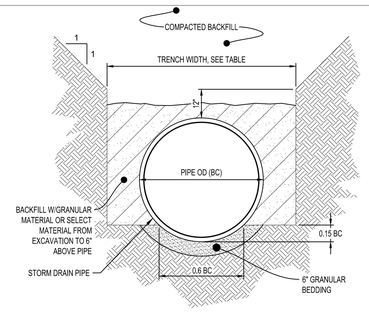
CONCRETE STAIR WITH RAILING

NTS



ACCESSIBLE PARKING AREA

NTS



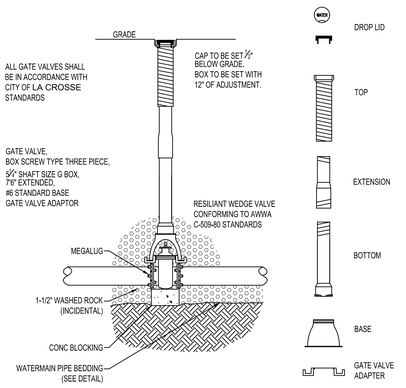
PIPE Ø	TRENCH WIDTH
36" OR LESS	BC + 24"
42" TO 54"	1.5 x BC
60" OR OVER	BC + 36"

NOTES:

GRANULAR BEDDING AND BACKFILL FOR STORM DRAIN PIPES SHALL BE INCIDENTAL TO STORM DRAIN CONSTRUCTION

NON-CONCRETE STORM DRAIN PIPE BEDDING

NTS

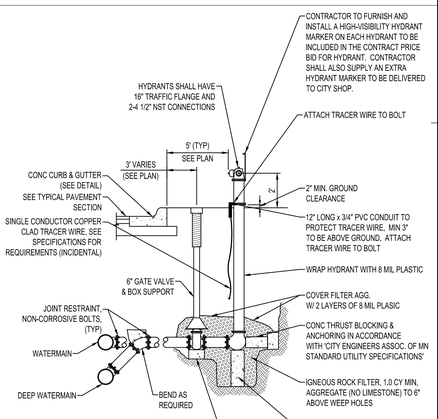


NOTES:

INSTALL TOP NUT EXTENDER TO 7' DEPTH ON ALL VALVES WITH OVER-DEPTH

TYPICAL GATE VALVE & BOX INSTALLATION

NTS



TYPICAL HYDRANT INSTALLATION

NTS

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ISG

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C0-DETAILS
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

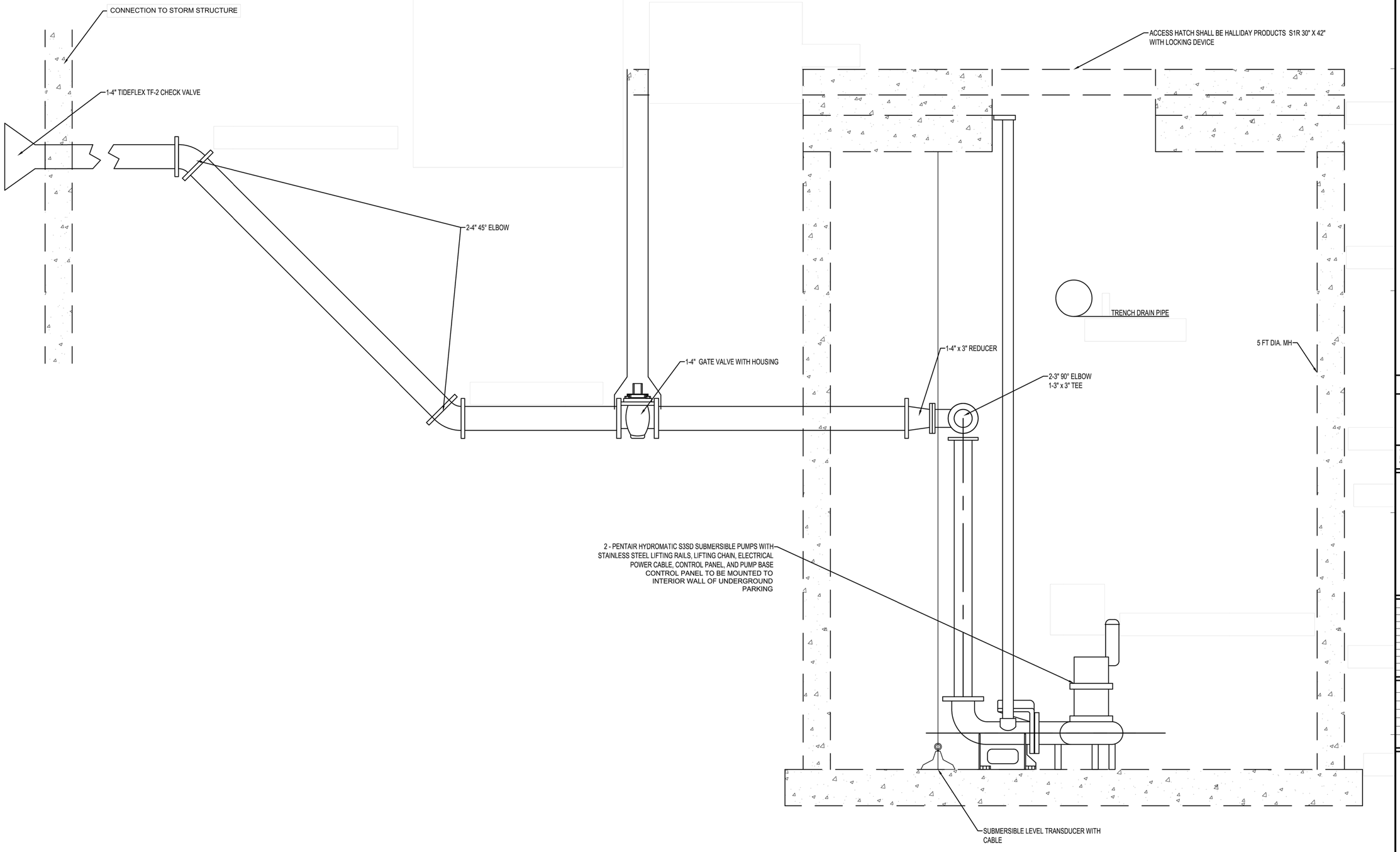
TITLE

SITE DETAILS

SHEET

C0-11

PLOT DATE: 5/20/2022 3:53 PM



SUBMERSIBLE PUMP

NTS SD450

PLOT DATE: 5/20/2022 3:53 PM

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C0-DETAILS
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

SITE DETAILS

SHEET

C0-12

PRELIMINARY NOT FOR CONSTRUCTION

ADVANCED DRAINAGE SYSTEMS, INC.

SiteASSIST by StormTech — FOR STORMTECH INSTRUCTIONS, DOWNLOAD THE INSTALLATION APP

MC-4500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-18a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (+1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN, AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

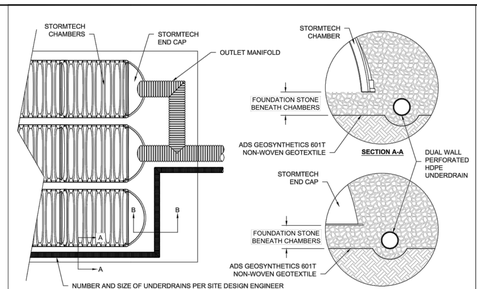
1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

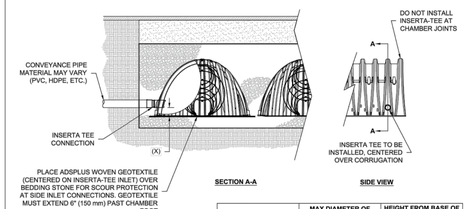
1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (600 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



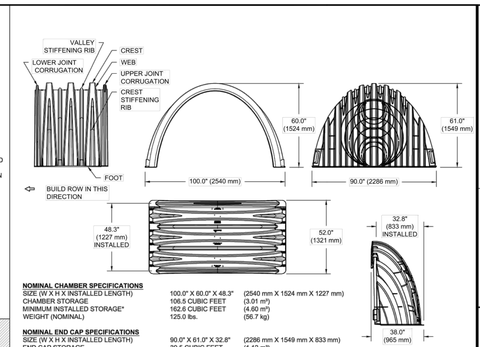
5 UNDERDRAIN DETAIL



CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

6 INSERTA-TEE SIDE INLET DETAIL



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT (NOMINAL)	125.0 lbs.	(56.7 kg)

NOMINAL END CAP SPECIFICATIONS

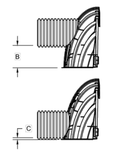
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC4500IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC4500IEPP06B		---	0.86" (22 mm)
MC4500IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC4500IEPP08B		---	1.01" (26 mm)
MC4500IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC4500IEPP10B		---	1.33" (34 mm)
MC4500IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC4500IEPP12B		---	1.50" (39 mm)
MC4500IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC4500IEPP15B		---	1.70" (43 mm)
MC4500IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC4500IEPP18TW			
MC4500IEPP18B		---	1.97" (50 mm)
MC4500IEPP18BW			
MC4500IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC4500IEPP24TW			
MC4500IEPP24B		---	2.26" (57 mm)
MC4500IEPP24BW			
MC4500IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC4500IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC4500IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PREFABRICATED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

2 MC-4500 TECHNICAL SPECIFICATIONS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

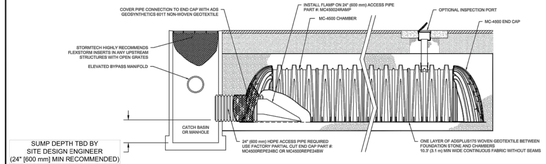
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

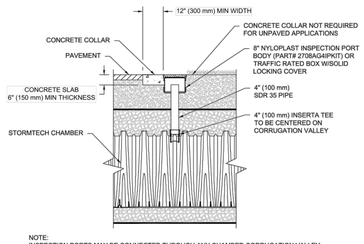
STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

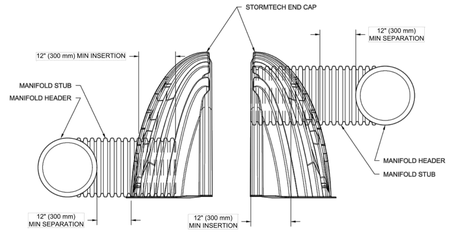


3 MC-4500 ISOLATOR ROW PLUS DETAIL



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION VALLEY.

4 4" PVC INSPECTION PORT DETAIL (MC SERIES CHAMBER)



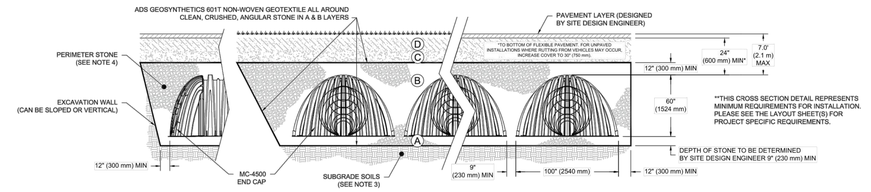
NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

7 MC-SERIES END CAP INSERTION DETAIL

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO THE BOTTOM OF THE 'D' LAYER ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR, FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-18a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

1 MC-4500 CROSS SECTION DETAIL

DRAWN: | DATE:
REVIEWED: | PROJECT NO:
REV: | NOT TO SCALE

MC-4500
STANDARD DETAILS

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON REFERENCED STANDARDS. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT. NOR HAS ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERIC AND NOT PROJECT SPECIFIC. IT IS THE SITE DESIGN ENGINEER'S RESPONSIBILITY TO REVIEW THE DETAILS PROVIDED HEREIN TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

StormTech — 39 SHADOWS RIDGE, SUITE 2 | SHADOW HILLS CT | 28697 PHOENIX, ENGINEERED SYSTEMS COMMISSIONING

4640 TRUEMAN BLVD
HILLIARD, OH 43026
ADVANCED DRAINAGE SYSTEMS, INC.

SHEET

PRELIMINARY NOT FOR CONSTRUCTION

DESIGN REVIEW PLAN SUBMITTAL
05/20/2022

NOTE:
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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C0-DETAILS
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

SITE DETAILS

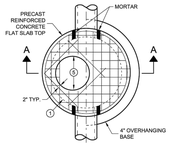
SHEET

C0-13

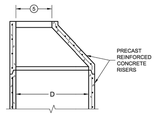
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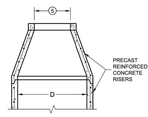
SDD 08B09 Manholes, 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT and 10-FT



PLAN VIEW
CIRCULAR OPENING



OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP



OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

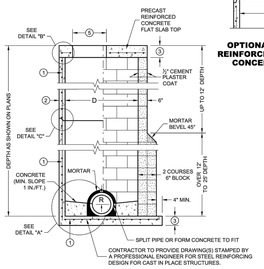
MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE / OPENING SIZE (FT.)	C	ALL ∅'S	K	L	M
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE (DIA.)	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES: 180° SEPARATION (IN)	90° SEPARATION (IN)	MINIMUM WALL THICKNESS (IN)	MINIMUM PRECAST FLAT SLAB TOP AND BASE THICKNESS
3-FT	15	12	4	6
4-FT	24	18	4	6
5-FT	36	24	5	8
6-FT	42	36	6	8
7-FT	48	36#2 ★	7	8
8-FT	60	42	8	8
9-FT	66	54	9	10
10-FT	72	60	10	10

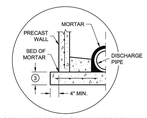
★ A 36" PIPE AND A 42" PIPE CAN BE PLACED WITHIN 90 DEGREES. SEE MINIMUM HORIZONTAL PIPE SEPARATION DETAIL.



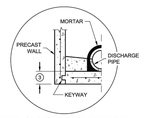
SECTION A - A

PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST IN PLACE OR PRECAST REINFORCED CONCRETE BASE ①

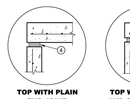


SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION



PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION

DETAIL "A"



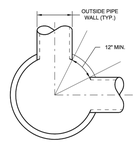
DETAIL "B"



DETAIL "B"



DETAIL "C"



MINIMUM HORIZONTAL PIPE SEPARATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-1", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONCRETE CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED CONCRETE FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES. CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH. 16 INCH C-C MAXIMUM SPACING. PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT. MINIMUM LENGTH OF 10 INCHES. MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½ INCH AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M199.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

CONCRETE BLOCK WILL NOT BE PERMITTED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "D".

① FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

② SEE PIPE MATRIX TABLE FOR MINIMUM WALL THICKNESS FOR PRECAST MANHOLES

③ SEE PIPE MATRIX TABLE FOR MINIMUM THICKNESS OF PRECAST FLAT SLAB TOPS AND BASES.

④ JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP.).

⑤ SEE MANHOLE COVER OPENING MATRIX.

MANHOLES, 3-FT, 4-FT 5-FT, 6-FT, 7-FT, 8-FT, 9-FT AND 10-FT DIAMETER

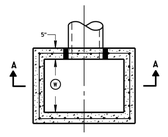
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED November 2021 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

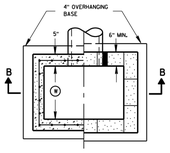
SDD 08B09 - 03

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT, 8-FT, 9-FT AND 10-FT DIAMETER

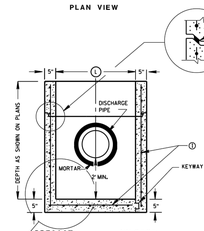
SDD 8A9 Catch Basins 2x3-FT and 2.5x3-FT



PLAN VIEW



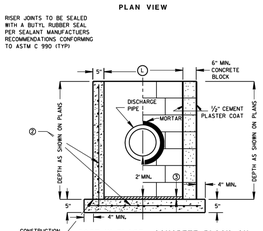
PLAN VIEW



PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE

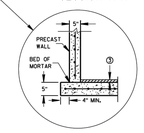
SECTION A-A



CAST-IN-PLACE REINFORCED CONCRETE

CONCRETE BLOCK ON CAST-IN-PLACE WITH PRECAST REINFORCED CONCRETE BASE ①

SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

CATCH BASINS 2X3-FT AND 2.5X3-FT

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST CATCH BASIN UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL PRECAST CATCH BASIN UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-1", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF FOUNDATION BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPARATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

① FOR PRECAST CATCH BASINS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.

② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

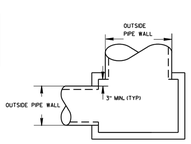
③ 1" CONCRETE KEY POURED AFTER INSTALLATION. 2" SUMP MEASURED FROM TOP OF KEY.

CATCH BASIN COVER MATRIX

CATCH BASIN SIZE	WIDTH (B) (FT.)	INLET COVER TYPE: LENGTH (L) (FT.)	F	ALL M'S
2X3-FT	2	3		X
2.5X3-FT	2.5	3	X	

PIPE MATRIX

CATCH BASIN SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES: WIDTH (IN)	LENGTH (IN)
2X3-FT	12	24
2.5X3-FT	18	24



DETAIL "A"

CATCH BASINS 2X3-FT AND 2.5X3-FT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED Sept., 2016 — DATE
/S/ Rodney Taylor — ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA

SDD 8A9-2

CATCH BASINS 2X3-FT AND 2.5X3-FT

ISG

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05/20/2022

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C0-DETAILS
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

SITE DETAILS

SHEET

C0-14

PRELIMINARY NOT FOR CONSTRUCTION

PLOT DATE: 5/20/2022 1:53 PM

SANITARY SEWER PIPE SCHEDULE

PIPE NO.	DRAIN FROM	INLET ELEVATION	DRAIN TO	OUTLET ELEVATION	PIPE SIZE	MATERIAL	PIPE CLASS	PIPE GRADE	PIPE LENGTH (FT)
SP-1	S-1	646.65	EX S-1	646.03	8"	PVC	SDR-35	0.40%	155
SP-2	S-2	647.16	S-1	646.75	8"	PVC	SDR-35	0.40%	103
SP-2A	WEST TOWNHOMES	649.16	S-2	648.86	6"	PVC	SDR-26	1.00%	30
SP-2B	45° BEND	648.08	S-2	648.02	8"	PVC	SDR-35	1.00%	7
SP-2C	BUILDING 1	649.00	45° BEND	648.08	8"	PVC	SDR-35	1.00%	91
SP-3	TEE	647.82	S-2	647.26	8"	PVC	SDR-35	0.40%	138
SP-3A	MIDDLE TOWNHOMES	650.23	TEE	649.93	6"	PVC	SDR-26	1.00%	30
SP-4	S-3	648.22	TEE	647.82	8"	PVC	SDR-35	0.40%	101
SP-4A	45° BEND	655.32	S-3	655.13	8"	PVC	SDR-35	1.00%	19
SP-4B	BUILDING 2	655.56	45° BEND	655.32	8"	PVC	SDR-35	1.00%	24
SP-5	S-4	648.69	S-3	648.32	8"	PVC	SDR-35	0.40%	93
SP-5A	EAST TOWNHOMES	651.36	S-4	651.06	6"	PVC	SDR-26	1.00%	30
SP-6	S-5	649.60	S-4	648.79	8"	PVC	SDR-35	0.40%	202
SP-7	BUILDING 3	650.50	S-5	649.70	8"	PVC	SDR-35	0.40%	200

SANITARY SEWER STRUCTURE SCHEDULE

STRUCTURE NO.	STRUCTURE TYPE	STRUCTURE SIZE (IN)	STRUCTURE MATERIAL	CASTING	PAY HEIGHT (LN FT)	TOP OF CASTING ELEVATION	INVERT ELEVATION	OUTLET PIPE	
S-1	SANITARY MANHOLE	48 Ø	RC	NEENAH R-1670	17.11	663.76	646.65	SP-1	
S-3	SANITARY MANHOLE	48 Ø	RC	NEENAH R-1670	16.23	664.45	648.22	SP-4	
S-4	SANITARY MANHOLE	48 Ø	RC	NEENAH R-1670	16.19	664.88	648.69	SP-5	
S-5	SANITARY MANHOLE	48 Ø	RC	NEENAH R-1670	14.64	664.24	649.60	SP-6	

STORM DRAIN PIPE SCHEDULE

PIPE NO.	DRAIN FROM	INLET ELEVATION	DRAIN TO	OUTLET ELEVATION	PIPE SIZE (IN)	MATERIAL	PIPE CLASS	PIPE GRADE	PIPE LENGTH (FT)
P-1	ST-1	658.22	ST-2	656.99	18	RCP	CLASS III	0.50%	246
P-2	ST-2	656.99	ST-3	655.86	21	RCP	CLASS III	0.68%	164
P-3	ST-3	655.80	ADS STORMTECH MC-4500	655.50	21	RCP	CLASS III	0.92%	33
P-4	ST-4	658.49	ST-6	657.95	12	RCP	CLASS III	0.50%	109
P-4A	ST-5	658.31	ST-6	657.97	12	RCP	CLASS III	0.50%	68
P-5	ST-6	657.96	ST-7	657.20	12	RCP	CLASS III	0.50%	153
P-6	ST-7	657.20	ST-8	656.39	15	RCP	CLASS III	0.50%	164
P-7	ST-11	657.74	TEE	657.55	12	RCP	CLASS III	0.50%	38
P-7A	TEE	657.55	ST-10	657.47	12	RCP	CLASS III	0.50%	17
P-8	ST-10	657.42	ST-8	656.82	15	RCP	CLASS III	0.50%	119
P-9	ST-12	656.77	ST-8	656.23	12	RCP	CLASS III	0.49%	108
P-10	ST-8	656.21	ST-13	655.71	24	RCP	CLASS III	0.50%	100
P-11	ST-13	655.81	ST-15	655.45	24	RCP	CLASS III	0.61%	61
P-11A	ST-15	655.55	ADS STORMTECH MC-4500	655.50	24	RCP	CLASS III	0.49%	9
P-11B	ST-14	656.01	ST-13	655.86	15	RCP	CLASS III	0.50%	30
P-12	ST-16	655.78	ST-15	655.63	12	RCP	CLASS III	0.50%	30
P-13	BOTTOM SOUTH RAMP TRENCH DRAIN	653.47	ST-9	654.32	4	PVC	FORCEMAIN	7.02%	12
P-14	ST-9	654.32	ST-10	657.57	4	PVC	FORCEMAIN	9.60%	34
P-15	NORTH RAMP TRENCH DRAIN	653.25	ST-19	653.25	4	PVC	FORCEMAIN	0.00%	7
P-16	ST-19	653.31	ST-26	657.00	4	PVC	FORCEMAIN	7.01%	53
P-17	TOP SOUTH RAMP TRENCH DRAIN	657.00	TEE	656.70	12	RCP	CLASS III	3.78%	8
P-18	ST-18	654.72	EXISTING CATCH BASIN	654.50	15	RCP	CLASS III	0.50%	45
P-19	ST-17	655.35	ST-18	654.82	15	RCP	CLASS III	0.50%	106
P-20	ADS STORMTECH MC-4500	655.55	ST-17	655.45	15	RCP	CLASS III	0.70%	14
P-21	ST-23	658.29	ST-24	657.95	6	HDPE	CLASS III	1.00%	34
P-22	ST-24	657.95	ST-2	657.39	6	HDPE	CLASS III	1.00%	55
P-23	ST-21	648.70	ST-20	648.78	24	RCP	CLASS III	0.37%	22

STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE NO.	STRUCTURE TYPE	STRUCTURE SIZE (IN)	STRUCTURE MATERIAL	CASTING	PAY HEIGHT (LN FT)	* TOP OF CASTING ELEVATION	INVERT ELEVATION	OUTLET PIPE
ST-1	WisDOT CATCH BASIN	36 x 24	RC	TYPE T	5.65	663.87	658.22	P-1
ST-2	WisDOT CATCH BASIN	36 x 24	RC	TYPE T	7.49	664.29	656.80	P-2
ST-3	WisDOT CATCH BASIN	36 x 24	RC	TYPE T	8.72	664.52	655.80	P-3
ST-4	WisDOT MANHOLE	36 Ø	RC	TYPE C	5.33	663.83	658.49	P-4
ST-5	WisDOT MANHOLE	36 Ø	RC	TYPE C	6.42	664.73	658.31	P-4A
ST-6	WisDOT MANHOLE	36 Ø	RC	TYPE C	7.15	665.10	657.95	P-5
ST-7	WisDOT MANHOLE	36 Ø	RC	TYPE C	6.96	664.16	657.20	P-6
ST-8	WisDOT MANHOLE	48 Ø	RC	TYPE C	6.56	662.77	656.21	P-10
ST-10	WisDOT CATCH BASIN	36 x 24	RC	TYPE H-S	6.17	663.59	657.42	P-8
ST-11	WisDOT CATCH BASIN	36 x 24	RC	TYPE H-S	6.06	663.80	657.74	P-7
ST-12	WisDOT MANHOLE	36 Ø	RC	TYPE C	6.45	662.66	656.20	P-9
ST-13	WisDOT MANHOLE	36 Ø	RC	TYPE C	7.35	663.04	655.68	P-11
ST-14	WisDOT CATCH BASIN	36 x 24	RC	TYPE H-S	6.93	662.94	656.01	P-11B
ST-15	WisDOT MANHOLE	36 Ø	RC	TYPE C	8.13	663.58	655.45	P-11A
ST-16	WisDOT CATCH BASIN	36 x 24	RC	TYPE H-S	7.81	663.59	655.78	P-12
ST-17	WisDOT MANHOLE	36 Ø	RC	TYPE C	7.23	662.58	655.35	P-19
ST-18	WisDOT MANHOLE	36 Ø	RC	TYPE C	7.06	661.79	654.72	P-18
ST-20	WisDOT MANHOLE	36 Ø	RC	TYPE C	12.65	661.43	648.78	
ST-21	WisDOT CATCH BASIN	36 x 24	RC	TYPE H-S	12.34	660.73	648.39	P-23
ST-22	WisDOT CATCH BASIN	36 x 24	RC	TYPE H-S	4.00	661.23	657.23	
ST-23	INLINE DRAIN	8 Ø	PVC	STANDARD GRATE	6.06	664.35	658.29	P-21
ST-24	DRAIN BASIN	8 Ø	PVC	STANDARD GRATE	6.38	664.32	657.95	P-22
ST-25	WisDOT CATCH BASIN	36 x 24	RC	TYPE H-S	6.19	664.84	658.65	P-1A
ST-26	WisDOT CATCH BASIN	36 Ø	RC	TYPE C	8.02	665.02	657.00	P-1B

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05/20/2022

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C0-DETAILS
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

UTILITY SCHEDULES

SHEET

C0-20

PRELIMINARY NOT FOR CONSTRUCTION

PRELIMINARY NOT FOR CONSTRUCTION

570

STORM WATER POLLUTION PREVENTION PLAN NOTES:

GENERAL PROJECT INFORMATION:

PROJECT NARRATIVE:
This project consists of the construction of asphaltic pavement, concrete sidewalk, curb & gutter, grading, stormwater management, restoration, erosion control, and any incidental work.

RESPONSIBLE PARTIES:
Contractor and Owner are required to apply for and receive a Wisconsin Pollution Discharge Elimination System (WPDES) Stormwater Construction Permit from the WDNR at least 14 days prior to beginning work.

Contractor and owner shall identify a person knowledgeable and experienced in the application of erosion prevention and sediment control BMP's who will oversee the implementation of the SWPPP.

Company: Contact Person:
Phone:

Company: Contact Person:
Phone:

Owner shall identify the entity responsible for the long term Operation and Maintenance of the storm water management system.

Company: Contact Person:
Phone:

PROJECT AREAS:
Total project size (disturbed area) = 6.96 acres
Minimum area requiring WPDES permit = 1.00 acres
****PROJECT DOES REQUIRE A WPDES PERMIT****
Existing area of impervious surface = 6.277 acres
Post construction area of impervious surface = 4.584 acres

Total new impervious surface area created = (1.698) acres

STORM WATER MANAGEMENT:
Types of permanent storm water management that will be used if more than one acre of new impervious surface is created are checked below:
[] Wet sedimentation basin [] Infiltration / Filtration
[] Regional Pond - Un-Named [] Alternative methods

RECEIVING WATERS:
Surface waters which will receive storm water from the site within 1 mile (aerial radius measurement) of project boundary. Include waters shown on USGS 7.5 minute quad and all special or impaired waters.

Name of Water Body	Type (ditch, pond, lake, etc.)	Special/Impaired Water?

CONSTRUCTION ACTIVITY NOTES:

POLLUTION PREVENTION:

All solid waste collected from the construction site must be disposed in accordance with all applicable regulations.

All hazardous materials (oil, gasoline, fuel, paint, etc) must be properly stored to prevent spills, leaks, or other discharge. Storage areas shall provide secondary containment and a hazardous materials spill kit. Equipment fueling and maintenance shall occur in a designated, contained area. Storage and disposal of hazardous waste must be in compliance with all applicable regulations. All runoff containing any hazardous material must be properly collected and disposed. No engine degreasing shall be allowed on site.

All sanitary wastes must be collected from portable units on site by a licensed sanitary waste management contractor. The units must be secured and shall be maintained on a regular basis as needed to prevent overfilling.

Emergency Spill Plan – The Contractor is responsible for all construction personnel to be informed of the manufacturers' recommended spill cleanup methods, and the location of that information and cleanup supplies. The Contractor shall modify the SWPPP as required within seven calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. Plans must identify measures to prevent the reoccurrence of such releases. If a spill occurs, the following steps shall be followed:

1. Observe the safety precautions associated with the spilled material. Stop the source of the spill, if you can do so safely. Call 911 if fire or public safety hazards are created.
2. Contain the spilled material. Dirt, sand, or any semi-impermeable material may be used to create a containment structure to prevent the material from flowing.
3. Report the spill to Wisconsin's Spill Hotline at (800) 943-0003.
4. Clean up the spilled material and dispose of the wastes properly.

The contractor is responsible for monitoring air pollution and ensuring it does not exceed levels set by local, state, or federal regulations. This includes dust created by work being performed on the site. Air pollution and dust control correction is considered incidental to the unit bid prices for which work is being performed. Additional dust control measures may be required by the Engineer.

Concrete washout onsite: All liquid and solid wastes generated by concrete washout operations must be contained in a leak-proof containment facility or impermeable liner. A compacted clay liner that does not allow washout liquids to enter ground water is considered an impermeable liner. The liquid and solid wastes must not contact the ground, and there must not be runoff from the concrete washout operations or areas. Liquid and solid wastes must be disposed of properly. A sign must be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.

INSPECTION AND MAINTENANCE:

The Permittees must routinely inspect the construction site once every seven (7) days during active construction and within 24 hours of a rainfall event greater than 0.5 inches in a 24 hour period.

All inspections performed during construction must be recorded and records retained with the erosion plan in accordance with the Permit. Contractor is responsible for keeping a record of all rainfall data & erosion control maintenance until final establishment of turf.

Erosion control and other BMP's must be replaced, repaired, or supplemented when they reach 33% design load.

FINAL STABILIZATION:
The Contractor must ensure final stabilization of the site. The Contractor must submit a Notice of Termination when the site has undergone final stabilization and all stormwater discharges associated with the construction site activities that require to have WPDES coverage have ceased.

All temporary erosion control measures and BMP's must be removed as part of the final site stabilization.

The storm water permit further defines final stabilization and its requirements.

CONSTRUCTION ACTIVITY NOTES:

EROSION PREVENTION:
Construction of silt fence and all other erosion control measures shall be complete before other construction activity occurs. Use phased construction wherever practical and establish turf as soon as possible to minimize sediment transport.

Temporary cover during construction is incidental.

Pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours after connection to a surface water.

All disturbed areas shall be seeded and mulched at the earliest possible time to prevent/reduce erosion.

A. Seed for the infiltration basin and swales shall be WisDOT mix #75 with mix #60 as a nurse crop and shall meet Specification Section 630. All other seed shall be WisDOT mix #40 and shall meet Specification Section 630. Mulching shall be appliced according to Specification Section 627.

B. Fertilizer shall be WisDOT Type B and shall meet Specification Section 629.

C. Temporary mulching shall be applied at a rate of 2 tons/acre. Mulch shall be disc anchored.

Additional erosion prevention measures may be found at the Wisconsin Department of Natural Resources Best Management Practices.

SEDIMENT CONTROL PRACTICES:

Construction of silt fence and all other erosion control measures shall be complete prior to land disturbing activities occur.

A tracking pad entrance or other approved alternatives must be constructed at the exit point from the project site.

Inlet erosion protection shall be installed and maintained until turf or pavement has been established.

The contractor shall be responsible for controlling erosion and preventing eroded material from leaving the construction zone. All eroded material that leaves the construction zone shall be collected by the contractor and returned to the site at the contractor's expense.

Contractor shall maintain a 50-foot natural buffer or use redundant sediment controls near surface waters if a buffer is not feasible.

Contractor shall take the necessary steps to minimize soil compaction and preserve topsoil on site.

All streets must be swept within 24 hours when any tracking occurs.

Silt fence or other effective erosion control measures must be installed around the perimeter of any soil stockpiled, including temporary stockpiles, at this location or any other on the project site. Stockpiles cannot be placed in surface waters, including storm water conveyances such as curb and gutter systems, or conduits and ditches.

DEWATERING AND BASIN DRAINING:

Dewater sediment-laden water to sedimentation basins if possible, or use other BMP's to prevent erosion when discharging to surface waters. Use appropriate energy dissipation measures on all discharges.

Dewatering practices cannot cause nuisance conditions, erosion or in receiving channels or inundation of wetlands resulting in adverse impacts.

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05/20/2022

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C1-SWPPP
DRAWN BY	AAQ/SMW
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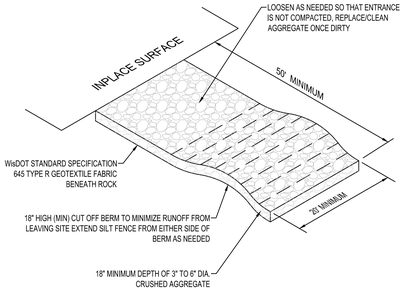
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STORMWATER POLLUTION PREVENTION PLAN NOTES

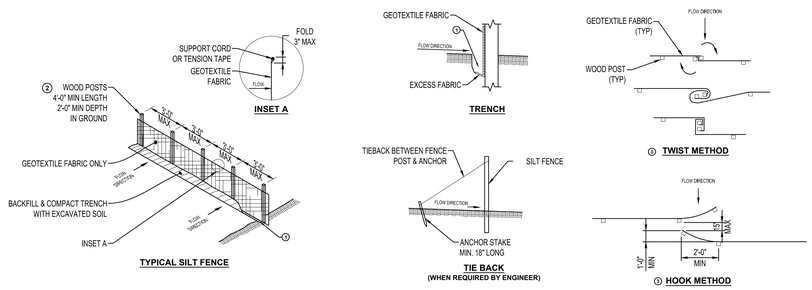
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PLOT DATE: 5/20/2022 1:53 PM



ROCK TRACKING PAD
NTS



NOTES:

ATTACH FABRIC TO THE POSTS WITH WIRE STAPLES OR WOODEN LATH & NAILS.

ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS.

8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

① FOR MANUAL INSTALLATIONS, TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY & ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH, BACKFILL, & COMPACT TRENCH WITH EXCAVATED SOIL.

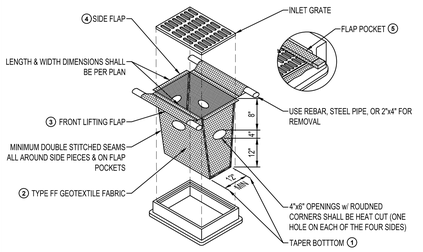
② WOOD POST SHALL BE A MINIMUM SIZE OF 1½" x 1½" OF OAK OR HICKORY.

③ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS.

A. TWIST METHOD - OVERLAP THE END POSTS & TWIST, OR ROTATE AT LEAST 180°.

B. HOOK METHOD - HOOK END OF EACH SILT FENCE LENGTH.

SILT FENCE
NTS



NOTES:

① TAPER BOTTOM OF BAG TO MAINTAIN THREE INCHES OF CLEARANCE BETWEEN THE BAG & THE STRUCTURE MEASURED FROM THE BOTTOM OF THE OVERFLOW OPENINGS TO THE STRUCTURE WALL.

② GEOTEXTILE FABRIC TYPE FF FOR FLAPS, TOP & BOTTOM OF OUTSIDE OF FILTER BAG. FRONT, BACK, & BOTTOM OF FILTER BAG BEING ONE PIECE.

③ FRONT LIFTING FLAP IS TO BE USED WHEN REMOVING & MAINTAINING FILTER BAG.

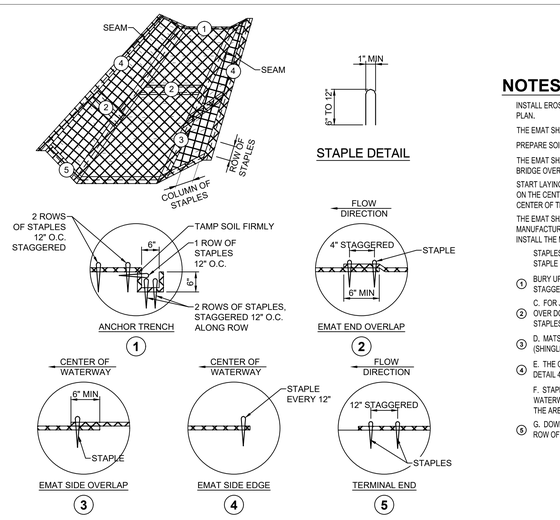
④ SIDE FLAPS SHALL BE A MAXIMUM OF TWO INCHES LONG. FOLD THE FABRIC OVER & REINFORCE WITH MULTIPLE STICHES.

⑤ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2" x 4". THE REBAR, STEEL PIPE, OR WOOD SHALL BE INSTALLED IN THE REBAR FLAP & SHALL NOT BLOCK THE TOP HALF OF THE CURB FACE OPENING.

CAN BE INSTALLED IN INLETS WITH OR WITHOUT CURB BOXES

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED IN THE FABRIC DOES NOT FALL INTO THE STRUCTURE. MATERIAL THAT HAS FALLEN INTO THE INLET SHALL BE IMMEDIATELY REMOVED.

TYPE D
INLET PROTECTION
NTS



NOTES:

INSTALL EROSION MAT (EMAT) OVER WATERWAYS AS SHOWN IN THE EROSION CONTROL PLAN.

THE EMAT SHALL CONFORM TO WisDOT STANDARD SPECIFICATIONS SECTION 628.

PREPARE SOIL PRIOR TO INSTALLING EMAT, INCLUDING SEEDING AND FERTILIZING.

THE EMAT SHALL BE PLACED IN FIRM CONTACT WITH THE SOIL AND NOT BE ALLOWED TO BRIDGE OVER SURFACE IRREGULARITIES. THE MAT SHALL NOT BE STRETCHED.

START LAYING THE MATS BY ROLLING CENTER MAT IN THE DIRECTION OF FLOW, CENTERED ON THE CENTERLINE OF WATERWAY. THERE SHALL NOT BE AN OVERLAP OF MATS AT THE CENTER OF THE WATERWAY.

THE EMAT SHALL BE ANCHORED, OVERLAPPED, AND STAPLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS. IF NO MANUFACTURER'S INSTRUCTIONS ARE AVAILABLE, INSTALL THE MAT AS FOLLOWS.

STAPLES SHALL BE "U" SHAPED, 0.12" DIAMETER WIRE OR GREATER (#11 GAUGE). (SEE STAPLE DETAIL FOR DIMENSIONS)

① BURY UPSTREAM END OF MAT IN A TRENCH 6" WIDE BY 6" DEEP AND STAPLED IN STAGGERED ROWS ACROSS THE WIDTH AS SHOWN IN DETAIL 1.

② C. FOR JOINING ENDS OF ROLLS, OVERLAP END OF UP SLOPE MAT A MINIMUM OF 6" OVER DOWN SLOPE MAT (SHINGLE STYLE). USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART, AS SHOWN IN DETAIL 2.

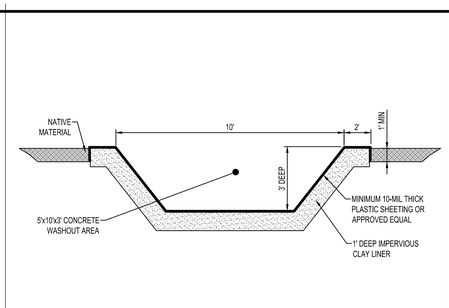
③ D. MATS ON SIDE SLOPES SHALL OVERLAP A MINIMUM OF 6" OVER THE MAT BELOW (SHINGLE STYLE). STAPLE OVERLAP AT 12" INTERVALS. (SEE DETAIL 3)

④ E. THE OUTER EDGE ALONG SIDES OF THE MAT SHALL BE STAPLED EVERY 12". (SEE DETAIL 4)

F. STAPLES ARE TO BE PLACED ALTERNATELY IN COLUMNS (IN THE DIRECTION OF THE WATERWAY) 2' APART AND IN ROWS (ACROSS THE WATERWAY) 3' APART THROUGHOUT THE AREA COVERED BY THE ECB.

⑤ G. DOWNSTREAM (TERMINAL) END OF BLANKET SHALL BE STAPLED WITH A DOUBLE ROW OF STAGGERED STAPLES 12" APART. (SEE DETAIL 5)

EROSION MAT INSTALLATION
NTS



NOTES:

CONTRACTOR SHALL INSTALL A SIGN INDICATING THE CONCRETE WASHOUT AREA.

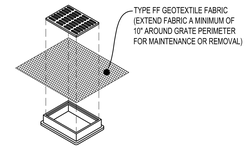
CONTRACTOR SHALL MAINTAIN WASHOUT AREA TO REMOVE MATERIALS BEYOND 75% CAPACITY.

WASHOUT AREA SHALL NOT BE PLACED WITHIN 50' OF STORM DRAINS, OPEN DITCHES OR BODIES OF WATER.

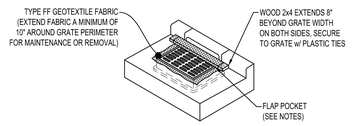
CONTRACTOR SHALL INSPECT WASHOUT AREA AS NECESSARY TO PREVENT LEAKS AND OVER TOPPING.

WASHOUT AREA SHALL BE REMOVED AFTER CONSTRUCTION IS COMPLETE.

CONCRETE WASHOUT
NTS



TYPE B
(WITHOUT CURB BOX)



TYPE C
(WITH CURB BOX)

NOTES:

FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2" x 4". THE REBAR, STEEL PIPE, OR WOOD SHALL BE INSTALLED IN TEH REBAR FLAP AND SHALL NOT BLOCK THE TOP HALF OF THE CURB FACE OPENING.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED IN THE FABRIC DOES NOT FALL INTO THE STRUCTURE. MATERIAL THAT HAS FALLEN INTO THE INLET SHALL BE IMMEDIATELY REMOVED.

TYPES B & C
INLET PROTECTION
NTS

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C1-SWPPP
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

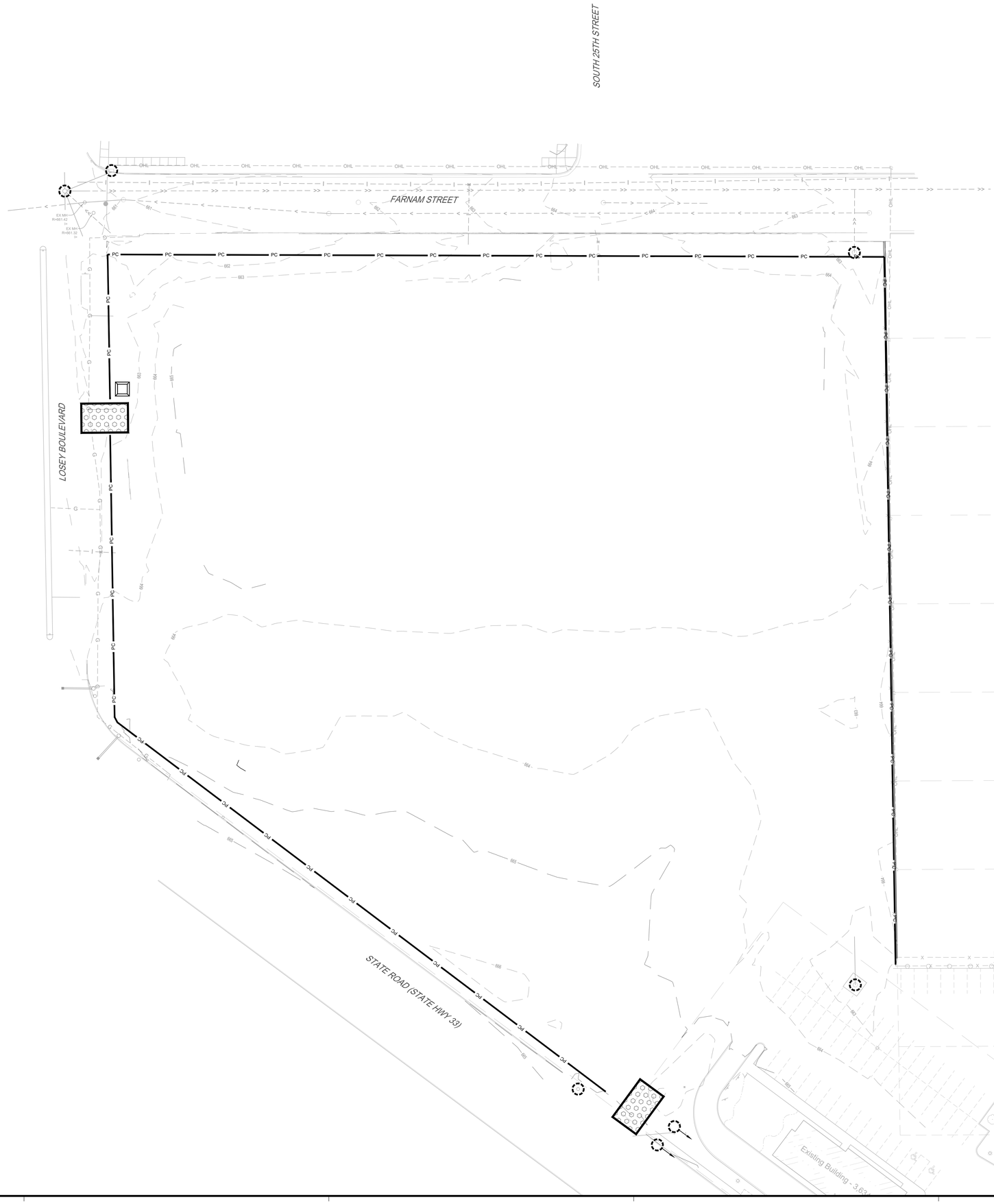
TITLE

STORMWATER POLLUTION PREVENTION PLAN DETAILS

SHEET

C1-20

PLOT DATE: 5/20/2022 2:54 PM



EROSION CONTROL LEGEND

SYMBOL	DESCRIPTION
	RANDOM RIPRAP, CLASS __
PC	PERIMETER CONTROL
SF	SILT FENCE, PREASSEMBLED
	STORM DRAIN INLET PROTECTION
	SEDIMENT CONTROL LOG
	ROCK CONSTRUCTION EXIT
	EROSION CONTROL BLANKET, CATEGORY __
	TURF REINFORCEMENT MAT, CATEGORY__
	CONCRETE WASHOUT AREA
	EXISTING DRAINAGE ARROW
	PROPOSED DRAINAGE ARROW
101	EXISTING CONTOUR (MINOR INTERVAL)
100	EXISTING CONTOUR (MAJOR INTERVAL)
101	PROPOSED CONTOUR (MINOR INTERVAL)
100	PROPOSED CONTOUR (MAJOR INTERVAL)

PERIMETER CONTROL CAN BE SILT FENCE OR SEDIMENT CONTROL LOG.

SEE SITE RESTORATION PLAN FOR FINAL TURF ESTABLISHMENT.

NOTE: EROSION CONTROL PLAN COVERAGE INCLUDES ELECTRIC, GAS, TELEPHONE, AND CABLE INSTALLATION. EACH COMPANY OR THEIR SUBCONTRACTOR IS RESPONSIBLE TO FOLLOW THE REQUIREMENTS OF THIS PLAN, INCLUDING PROVIDING THEIR OWN RESTORATION IF INSTALLATION OCCURS AFTER PRIMARY INSTALLATION OF SEEDING/SODDING/MULCHING DURING CONSTRUCTION OF EACH UTILITY.

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COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

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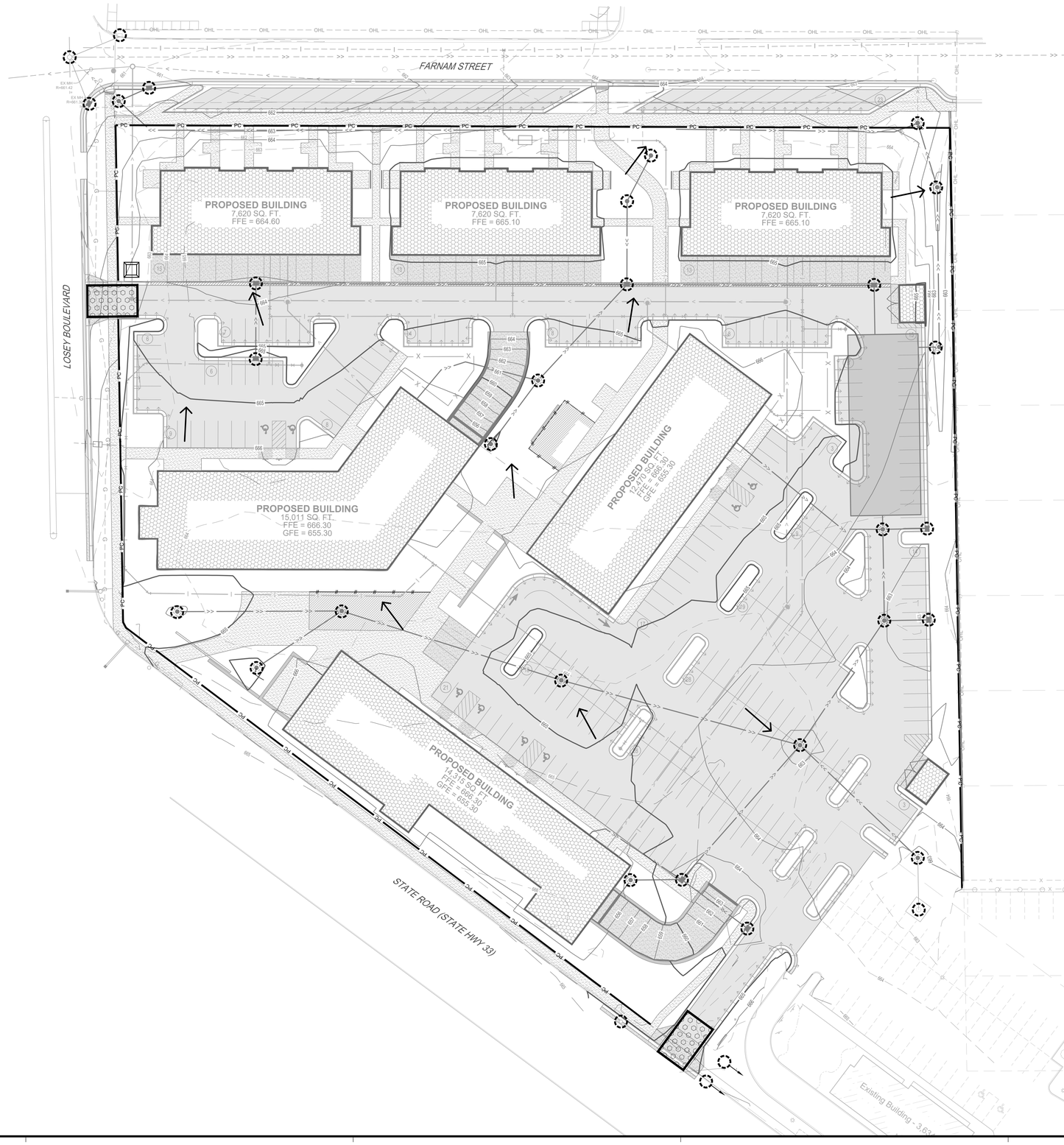
TITLE

PRE CONSTRUCTION POLLUTION PREVENTION PLAN

SHEET

C1-30

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EROSION CONTROL LEGEND

SYMBOL	DESCRIPTION
	RANDOM RIPRAP, CLASS __
PC	PERIMETER CONTROL
SF	SILT FENCE, PREASSEMBLED
	STORM DRAIN INLET PROTECTION
	SEDIMENT CONTROL LOG
	ROCK CONSTRUCTION EXIT
	EROSION CONTROL BLANKET, CATEGORY __
	TURF REINFORCEMENT MAT, CATEGORY__
	CONCRETE WASHOUT AREA
	EXISTING DRAINAGE ARROW
	PROPOSED DRAINAGE ARROW
101	EXISTING CONTOUR (MINOR INTERVAL)
100	EXISTING CONTOUR (MAJOR INTERVAL)
101	PROPOSED CONTOUR (MINOR INTERVAL)
100	PROPOSED CONTOUR (MAJOR INTERVAL)

PERIMETER CONTROL CAN BE SILT FENCE OR SEDIMENT CONTROL LOG.

SEE SITE RESTORATION PLAN FOR FINAL TURF ESTABLISHMENT.

NOTE: EROSION CONTROL PLAN COVERAGE INCLUDES ELECTRIC, GAS, TELEPHONE, AND CABLE INSTALLATION. EACH COMPANY OR THEIR SUBCONTRACTOR IS RESPONSIBLE TO FOLLOW THE REQUIREMENTS OF THIS PLAN, INCLUDING PROVIDING THEIR OWN RESTORATION IF INSTALLATION OCCURS AFTER PRIMARY INSTALLATION OF SEEDING/SODDING/MULCHING DURING CONSTRUCTION OF EACH UTILITY.

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574

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COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

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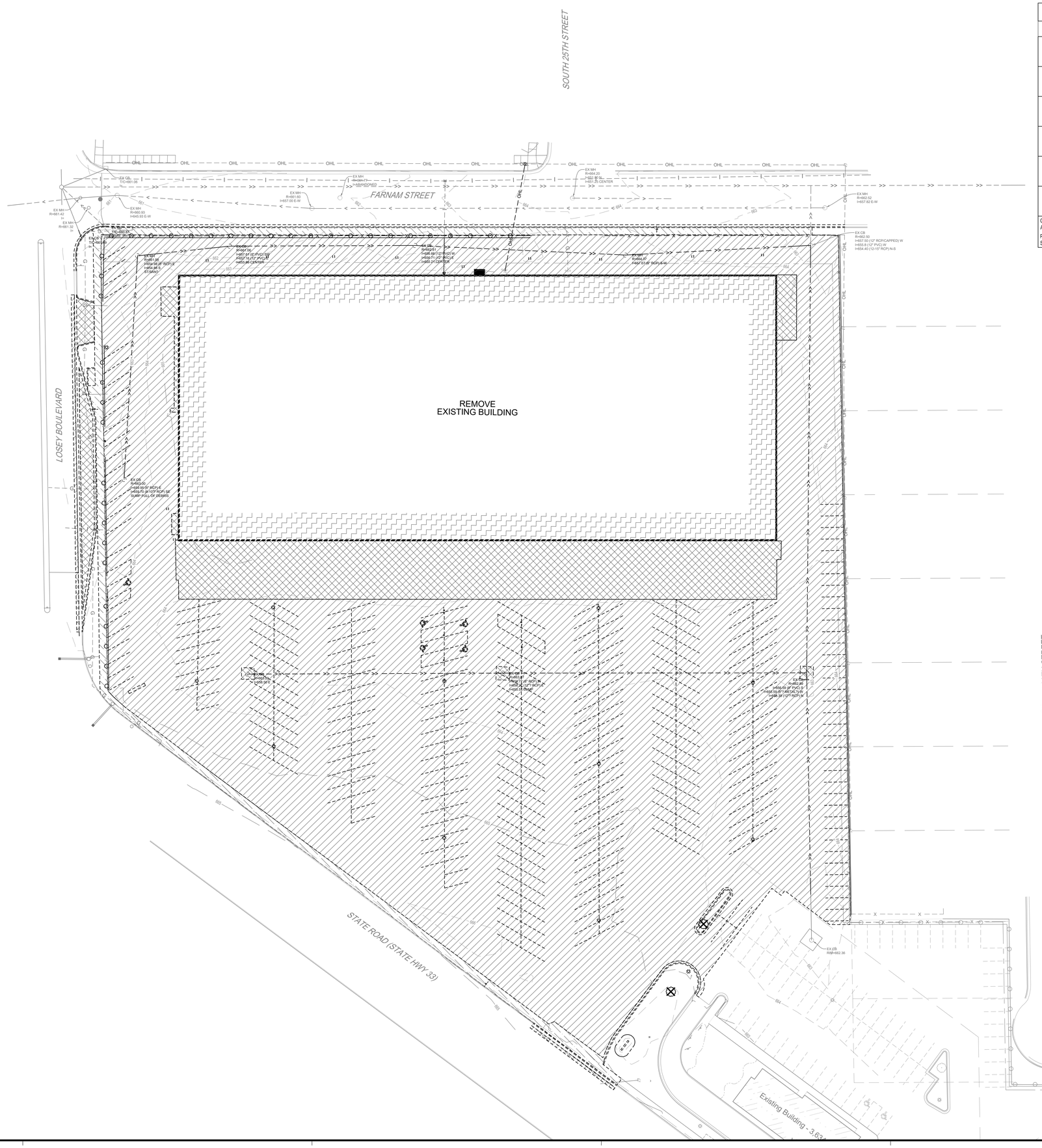
TITLE

STORMWATER POLLUTION PREVENTION PLAN

SHEET

C1-40

PLOT DATE: 5/20/2022 2:54 PM



REMOVAL LEGEND

SYMBOL	DESCRIPTION
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE CONCRETE WALK
	DEMOLISH BUILDING
	REMOVE LANDSCAPING
	REMOVE DECIDUOUS TREE (CLEAR AND GRUB)

CONTRACTOR SHALL VERIFY EXISTING PAVEMENT SECTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.

PAVEMENT REMOVALS SHALL INCLUDE FULL DEPTH SAWCUT AND SECTION REMOVAL.

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DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C2-REMOVAL
DRAWN BY	AAQ/SMW
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REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

EXISTING SITE AND REMOVALS PLAN

SHEET

C2-10

PLOT DATE: 5/20/2022 2:54 PM

DENSITY COMPUTATIONS

PROPOSED UNITS	216
SITE AREA (AC)	6.30
DENSITY (UNITS/AC)	35

TOWNHOME PARKING DATA

TYPE	STALLS PROVIDED
TOWNHOME (OUTSIDE)	39
TOWNHOME (GARAGE)	39
TOTAL	78

MIXED-USE PARKING DATA

TYPE	STALLS PROVIDED
PROPOSED STALLS (OUTSIDE)	225
PROPOSED STALLS (UNDERGROUND)	105
ACCESSIBLE STALLS (INCLUDED IN OUTSIDE)	8
TOTAL	338

SITE AREA SUMMARY

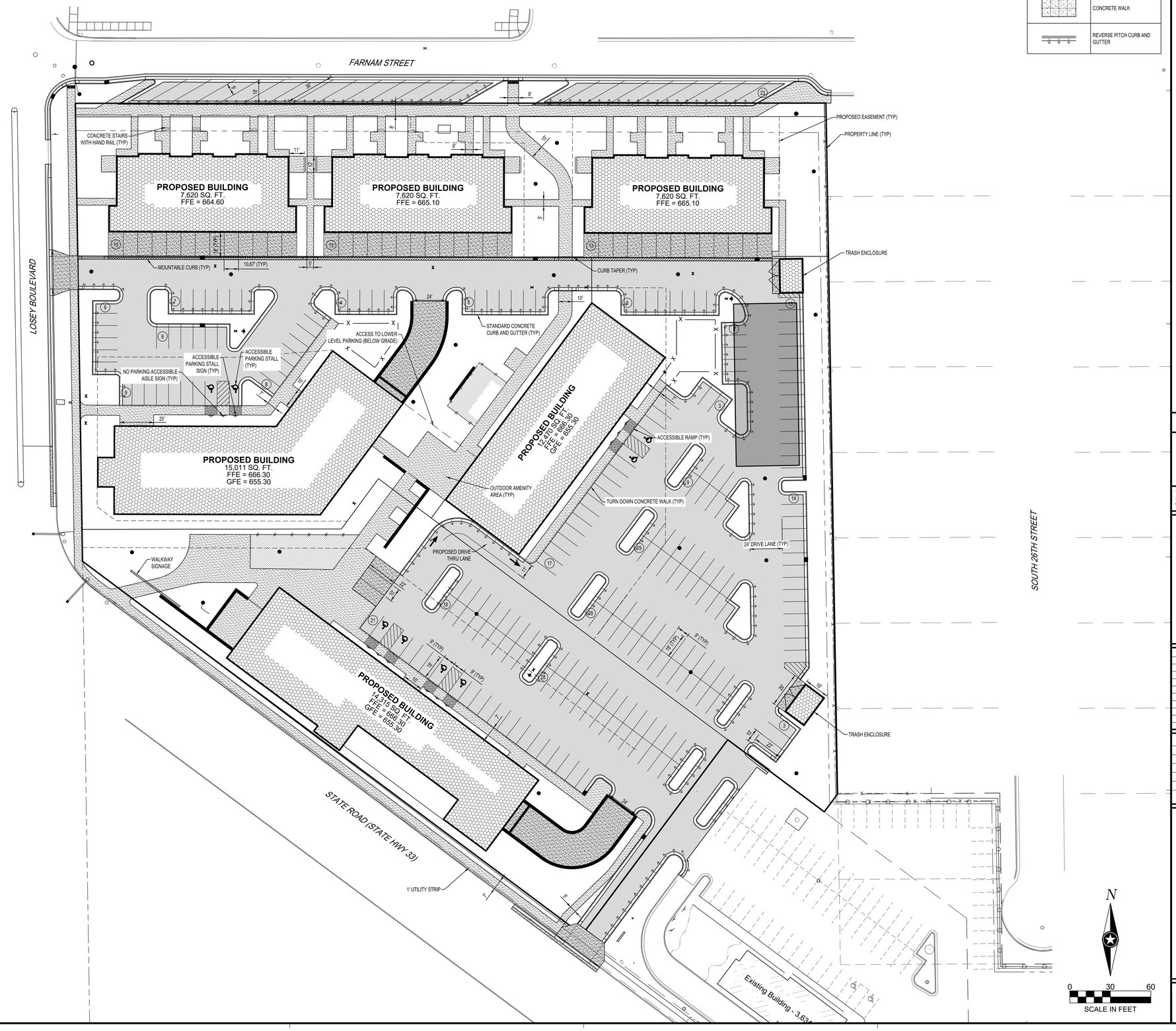
			UNITS		UNITS	PERCENT
PROPOSED BUILDINGS	66,306	SF	1.52	AC	25%
IMPERVIOUS AREA (PARKING/SIDEWALK)	139,705	SF	3.21	AC	51%
OPEN AREA	66,773	SF	1.53	AC	24%
PROPOSED AREA	272,784	SF	6.26	AC	100%
PROPOSED ROW	5,557	SF	0.13	AC	
TOTAL AREA	278,341	SF	6.39	AC	

BICYCLE PARKING DATA

TYPE	SPACES PROVIDED
PROPOSED SPACES (OUTSIDE)	18
TOWNHOME (GARAGE)	60
PROPOSED SPACES (GARAGE)	39
TOTAL	117

PAVEMENT LEGEND

SYMBOL	DESCRIPTION
	BITUMINOUS PAVEMENT
	CONCRETE PAVEMENT
	HEAVY DUTY CONCRETE PAVEMENT
	CONCRETE WALK
	REVERSE PITCH CURB AND GUTTER



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COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C3-SITE
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
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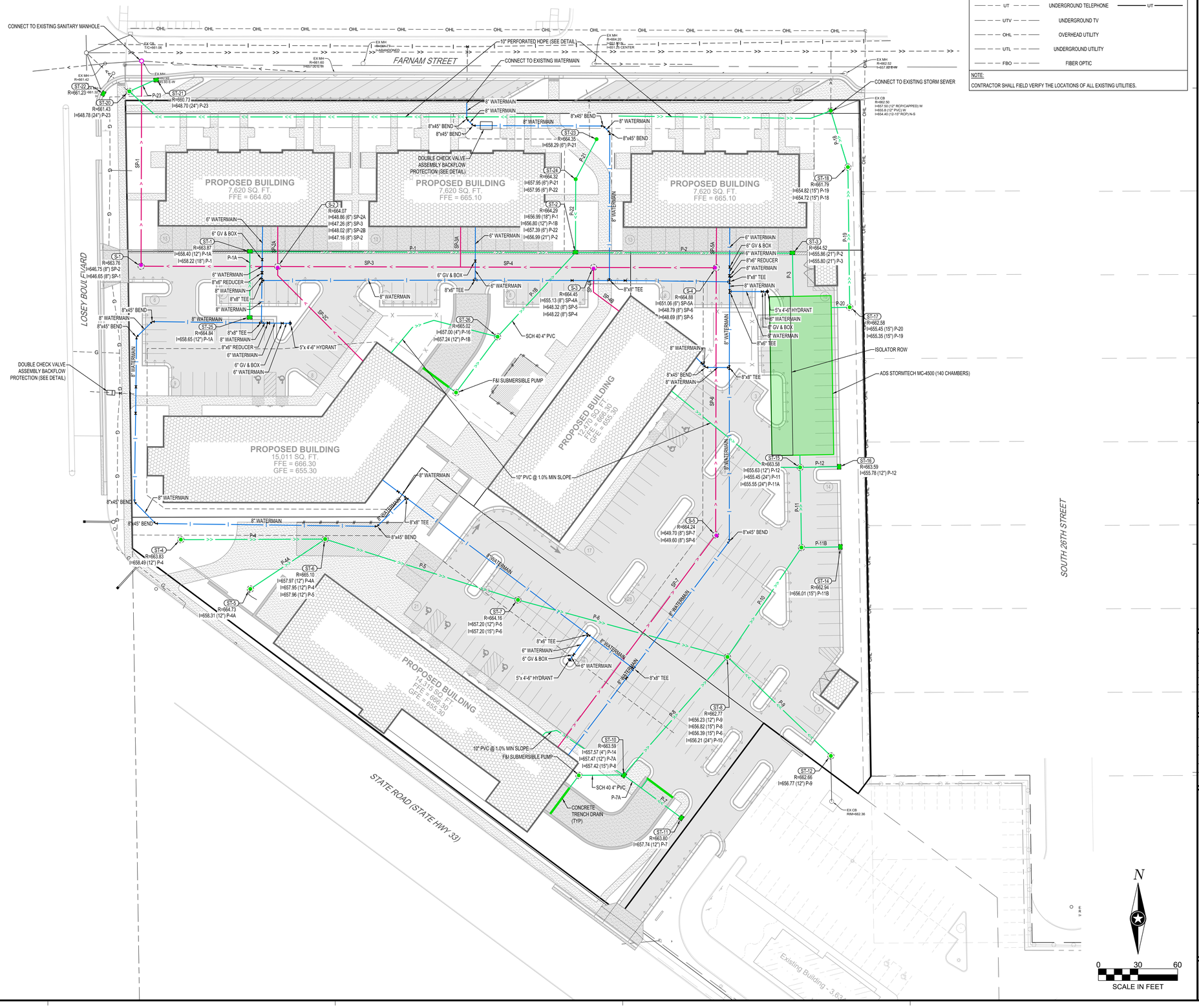
TITLE

SITE PLAN

SHEET

C3-10

PLOT DATE: 5/20/2022 3:54 PM



UTILITY LEGEND

EXISTING		PROPOSED
>>	STORM DRAIN	>>
>	SANITARY SEWER	>
II>	SANITARY SEWER FORCEMAIN	<II
W	WATER MAIN	W
G	GAS	G
OE	OVERHEAD ELECTRIC	OE
UE	UNDERGROUND ELECTRIC	UE
UT	UNDERGROUND TELEPHONE	UT
UTV	UNDERGROUND TV	
OHL	OVERHEAD UTILITY	
UTL	UNDERGROUND UTILITY	
FBO	FIBER OPTIC	

NOTE:
CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.

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REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C3-SITE
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ORIGINAL ISSUE DATE	--/--/--
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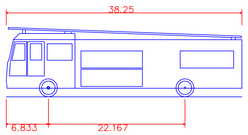
TITLE

SITE UTILITY PLAN

SHEET

C3-11

PLOT DATE: 5/20/2022 2:54 PM



E-ONE Combination Unit

Overall Length	38.250ft
Overall Width	8.333ft
Overall Body Height	11.250ft
Min Body Ground Clearance	1.393ft
Track Width	8.333ft
Lock-to-lock time	6.00s
Max Wheel Angle	45.00°

HYDRANT COVERAGE LEGEND

R150'

EXISTING HYDRANT

R150'

PROPOSED HYDRANT

SOUTH 25TH STREET

FARNAM STREET

LOSEY BOULEVARD

SOUTH 26TH STREET

STATE ROAD (STATE HWY 33)

PROPOSED BUILDING
7,620 SQ. FT.
FFE = 664.60

PROPOSED BUILDING
7,620 SQ. FT.
FFE = 665.10

PROPOSED BUILDING
7,620 SQ. FT.
FFE = 665.10

PROPOSED BUILDING
15,011 SQ. FT.
FFE = 666.30
GFE = 655.30

PROPOSED BUILDING
12,570 SQ. FT.
FFE = 666.30
GFE = 655.30

PROPOSED BUILDING
14,815 SQ. FT.
FFE = 666.30
GFE = 655.30

Existing Building - 3,63

EX MH R=681.60 I=657.00 E-W

EX MH R=681.42 I=

EX MH R=681.32 I=

EX MH R=684.20 I=651.90 S I=651.25 CENTER

EX MH R=682.52 I=657.82 E-W

EX CB R=682.50 I=657.50 (12" RCP/CAPPED) W I=655.8 (12" PVC) W I=654.40 (12-15" RCP) N-S

EX CB T/C=661.06

EX CB RIM=662.36

N

0 30 60

SCALE IN FEET

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COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C3-HYDRANT MAP
DRAWN BY	AAQ/SMW
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REVIEWED BY	KBR
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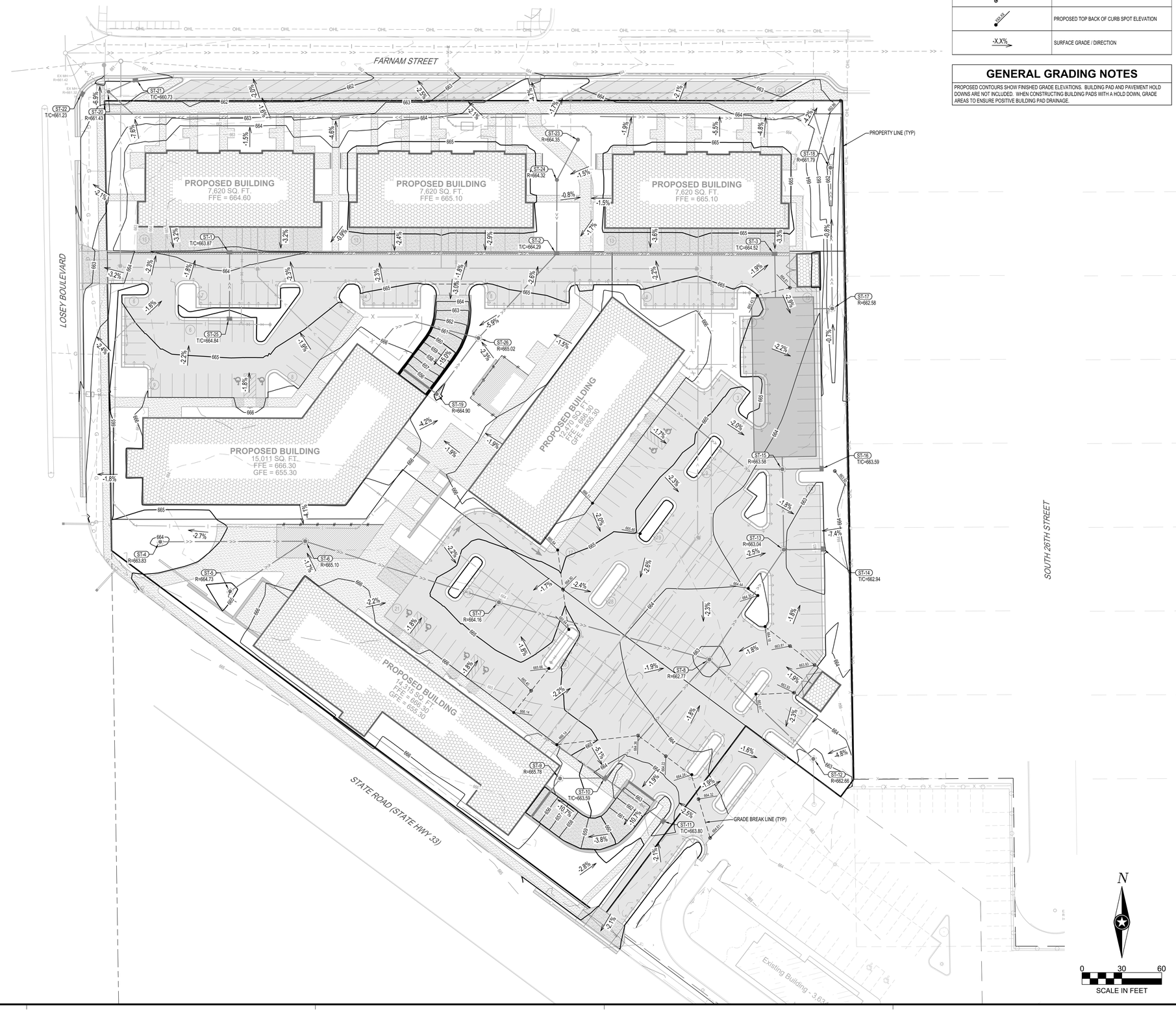
TITLE

HYDRANT COVERAGE MAP

SHEET

C3-12

PLOT DATE: 5/20/2022 3:55 PM



GRADING LEGEND

101	EXISTING CONTOUR (MINOR INTERVAL)
100	EXISTING CONTOUR (MAJOR INTERVAL)
101	PROPOSED CONTOUR (MINOR INTERVAL)
100	PROPOSED CONTOUR (MAJOR INTERVAL)
XXX.XX	PROPOSED SPOT ELEVATION
XXX.XX	PROPOSED TOP BACK OF CURB SPOT ELEVATION
-X.X%	SURFACE GRADE / DIRECTION

GENERAL GRADING NOTES

PROPOSED CONTOURS SHOW FINISHED GRADE ELEVATIONS. BUILDING PAD AND PAVEMENT HOLD DOWNS ARE NOT INCLUDED. WHEN CONSTRUCTING BUILDING PADS WITH A HOLD DOWN, GRADE AREAS TO ENSURE POSITIVE BUILDING PAD DRAINAGE.

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REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C4-GRADING
DRAWN BY	AAQ/SMW
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ORIGINAL ISSUE DATE	--/--/--
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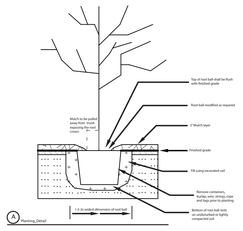
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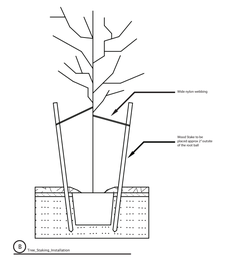
GRADING PLAN

SHEET

C4-10

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Trees	Genus		Count	Size
American Linden	Tilia americana		2	2" Cal.
American Musclewood	Carpinus caroliniana		15	#15 multistem
American Sycamore	Platanus occidentalis		3	2" Cal.
Bur Oak	Quercus macrocarpa		5	2" Cal.
Contender Peach	Prunus persica 'Contender'		1	5' Bare root
Eastern Redbud	Cercis canadensis		16	2" Cal.
Honey Locust	Gleditsia triacanthos		9	2" Cal.
Ironwood	Ostrya virginiana		6	2" Cal.
Kentucky Coffee Tree	Gymnocladus dioicus		4	2" Cal.
Pagoda Dogwood	Cornus alternifolia		4	#15 multistem
Reliance Peach	Prunus persica 'Reliance'		1	5' Bare root
River Birch	Betula Nigra		5	2" Caliper
Royal Raindrop Crabapple	Malus x ' JFSKW5'		9	#15 Con
Serviceberry Tree	Amelanchier grandiflora 'Autumn Brilliance'		16	#15 singlestem
Seven Son Flower	Heptacodium miconioides		10	7'
Showy Mountain Ash	Sorbus decora		5	2" Cal.
Superior Plum	Prunus 'Superior'		1	5' Bare root
Sweetgulbur Oak	Quercus x schuettei		3	2" Cal.
Tart Northstar Cherry	Prunus cerasus 'North Star'		2	5' Bare root
Toka Plum	Prunus 'Toka'		1	5' Bare root
Turkish Filbert	Corylus colurna		3	2" cal.
Urban Pinnacle Oak	Quercus macrocarpa 'JFS-KW3'		3	2" Cal.
		TOTAL	135	
Shrubs				
Arctic Fire Dogwood	Cornus stolonifera		38	#5 Cont.
Aronia Lowscape Mound	Aronia melanocarpa 'UCONNAR165' PPAF, CPBRAF		28	#5 Cont.
Blizzard Mock Orange	Philadelphus coronarius		37	#5 Cont.
Blue Muffin Viburnum	Viburnum dentatum 'Blue Muffin'		69	#5 Cont.
Chokeberry Aronia	Aronia Melanocarpa		31	#5 Cont.
Cranberry Cotoneaster	Cotoneaster apiculatus		68	#5 Cont.
Dwarf Bush Honeysuckle	Diervilla lonicera		67	#5 Cont.
Elderberry	Sambucus Canadensis		4	#5 Cont.
Fibre-optics Buttonbush	Cephalanthus occidentalis 'Fibre-optics'		35	#5 Cont.
Gro-Low Sumac	Rhus aromatica Gro-Low		19	#5 Cont.
Helmsley Arborvitae	Thuja occidentalis 'Helmsleyi'		21	#5 Cont.
Jefferson Hazelnut	Corylus avellana		3	#5 Cont.
Judd Viburnum	Viburnum x juddii		13	#5 Cont.
New Jersey Tea	Ceanothus americanus		20	#5 Cont.
Newbark 'Little Devil'	Physocarpus opulifolius 'Little Devil'		20	#5 Cont.
Red Currant	Ribes rubrum		4	#5 Cont.
Rugosa Rose	Rosa rugosa		50	#5 Cont.
Serviceberry	Amelanchier Alnifolia		40	#5 Cont.
Skyrocket Juniper	Juniperus scopulorum 'Skyrocket'		9	#5 Cont.
Snowberry	Symphoricarpos albus		33	#5 Cont.
St. John's Wort	Hypericum Perforatum		54	#5 Cont.
Sugar Shack Buttonbush	Cephalanthus occidentalis 'Sugar Shack'		39	#5 Cont.
Summer Wine Ninebark	Physocarpus opulifolius 'Summer Wine'		5	#5 Cont.
Trautman Juniper	Juniperus chinensis		9	#5 Cont.
		TOTAL	712	
Forbs				
(Wine Cups) Purple Poppy Mallow	Callirhoe involucrata		25	#1 Cont.
Anise Hyssop	Agastache foeniculum		5	#1 Cont.
Aromatic aster	Aster oblongifolius		5	#1 Cont.
Blazing Star	Liatris spicata		5	#1 Cont.
Blue False Indigo	Baptisia australis		6	#1 Cont.
Blue Stemmed Goldenrod	Solidago Caesia		6	#1 Cont.
Bradbury's Monarda	Monarda Bradburiana		14	#1 Cont.
Butterfly Milkweed	Asclepias Tuberosa		10	#1 Cont.
Cream Wild Indigo	Baptisia bracteata		3	#1 Cont.
Downy Wood Mint	Blephilia ciliata		5	#1 Cont.
Fall-Bearing Raspberry	-		21	#1 Cont.
Golden Alexander	Zizia aurea		17	#1 Cont.
Hairy Beardtongue	Pendenon hirsutus		3	#1 Cont.
Ironweed	Vernonia baldwini		3	#1 Cont.
Jacob's Ladder	Polemonium caeruleum		43	#1 Cont.
Joe Pyeweed	Eutrochium purpureum		3	#1 Cont.
Lanceleaf Coreopsis	Coreopsis lanceolata		13	#1 Cont.
New England Aster	Symphyotrichum novae-angliae		3	#1 Cont.
Ohio Spiderwort	Tradescantia ohiensis		5	#1 Cont.
Orange Coneflower	Rudbeckia fulgida		3	#1 Cont.
Purple Coneflower	Echinacea Purpurea		5	#1 Cont.
Rose Milkweed	Asclepias incarnata		13	#1 Cont.
Royal Catchfly	Silene regia		5	#1 Cont.
Showy Goldenrod	Solidago speciosa		3	#1 Cont.
Sneezeweed	Helenium autumnale		3	#1 Cont.
Wild Geranium	Geranium maculatum		34	#1 Cont.
Wild Mint	Mentha arvensis		20	#1 Cont.
Wild Nodding Onion	Allium Cernuum		25	#1 Cont.
Wild Quinine	Parthenium integrifolium		5	#1 Cont.
Wild Strawberry	Fragaria vesca		20	#1 Cont.
Yellow Wild Indigo	Baptisia tinctoria		3	#1 Cont.
Cardinal Flower	Lobelia cardinalis		3	#1 Cont.
		TOTAL	342	
Grasses/Sedges				
Brown Fox Sedge	Carex Vulpinoidea		167	#1 Cont.
Prairie Dropseed	Sporobolus heterolepis		159	#1 Cont.
Switchgrass	Panicum virgatum 'Shenandoah'		63	#1 Cont.
Pennsylvania Sedge	Carex pensylvanica		141	#1 Cont.
Side Oats Grama	Bouteloua curtipendula		44	#1 Cont.
Little Bluestem	Schizachyrium scoparium		37	#1 Cont.
		TOTAL	522	

- Little Bluestem
- Side Oats Grama
- Prairie Dropseed
- Switchgrass
- Porcupine Sedge
- Pennsylvania Sedge
- Brown Fox Sedge

- Bradbury's Monarda
- Lanceleaf Coreopsis
- Spider Wort
- Wild Quinine
- Hairy Beardtongue
- Aromatic Aster
- Yellow Indigo
- Cream Wild Indigo
- Anise Hyssop
- Orange Coneflower
- Downy Wood Mint
- Ironweed
- Golden Alexander
- Wine Caps
- Great Blue Lobelia
- Jacob's Ladder
- Fall-bearing Raspberry
- Rose Milkweed
- Butterfly Milkweed
- Purple Coneflower
- Wild Nodding Onion
- Showy Goldenrod
- Blue Stemmed Goldenrod
- Sneezeweed
- Blazing Star
- Blue False Indigo
- New England Aster
- Wild Geranium
- Ironweed
- Joe Pyeweed
- Wild Strawberry
- Wild Mint
- Royal Catchfly

- Rugosa Rose
- Red Currant
- Snowberry
- Gro-Low Sumac
- Judd Viburnum
- Summer Wine Ninebark
- Jefferson Hazelnut
- Common Elderberry
- Skyrocket Juniper
- Trautman Juniper
- Holmstrup Arborvitae
- Cranberry cotoneaster
- Blizzard Mock Orange
- Aronia Lowscape Mound
- New Jersey Tea
- Meadowsweet
- Steeplebush
- Sugar Shack Button Bush
- Fibre Optics Button Bush
- Dwarf Bush Honeysuckle
- Shrubby St. John's Wort
- 'Blue Muffin' Viburnum
- Aronia Chokeberry
- 'Little Devil' Ninebark
- Arctic Fire Dogwood
- Serviceberry Shrub

Coulee Region Ecoscapes LLC

Copper Rocks Development

La Crosse, WI

Site Metrics

Garden Area: 39,150 sq ft

Lawn Area: 35,750 q ft

Landscape Area: 74,900 sq ft

Boulevard: 780 linear ft

05/16/2022

Proposed Landscape Plan

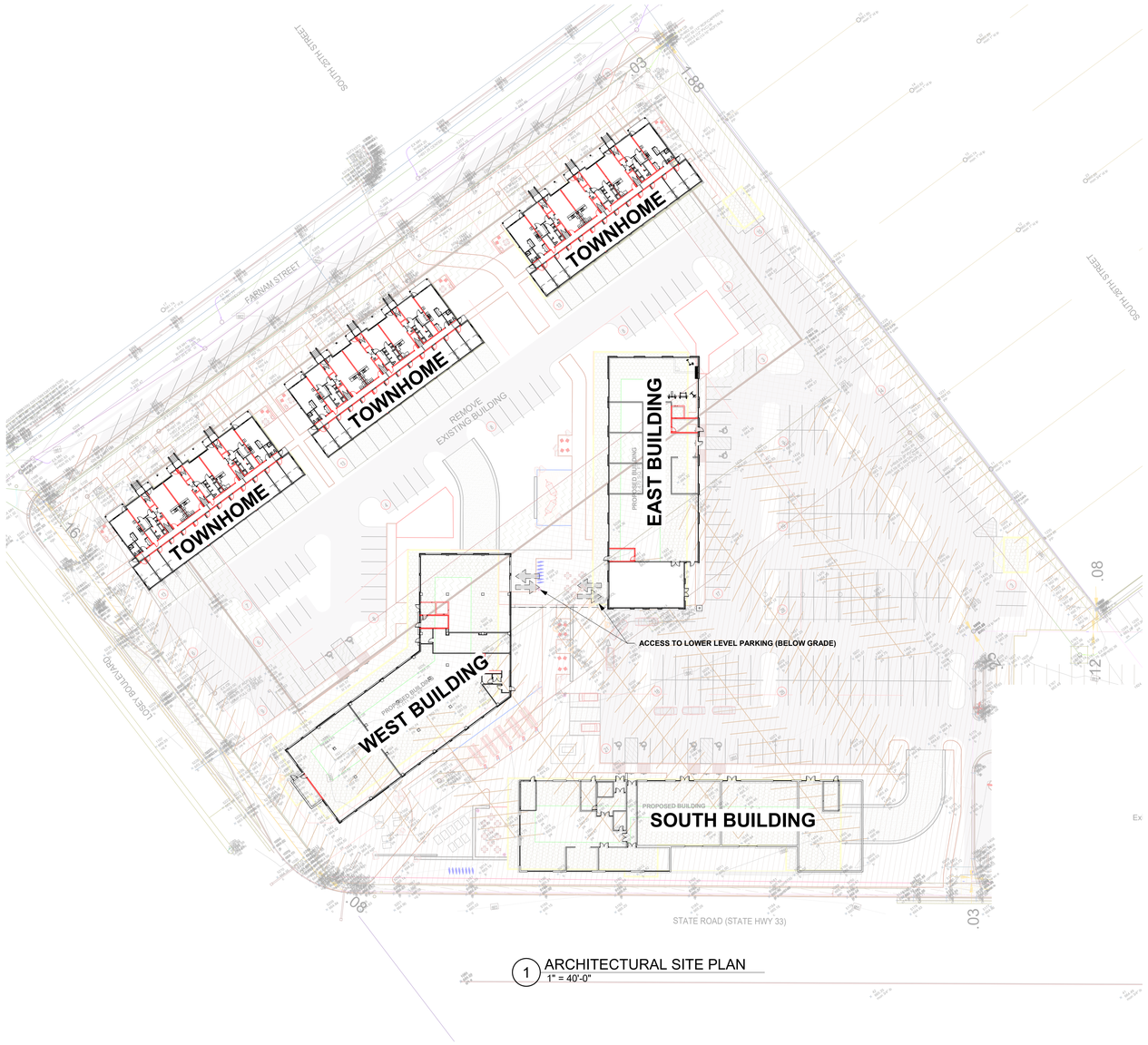
1:30

30'

0

60'

N



1 ARCHITECTURAL SITE PLAN
1" = 40'-0"



COVER SHEET





AXON VIEWS

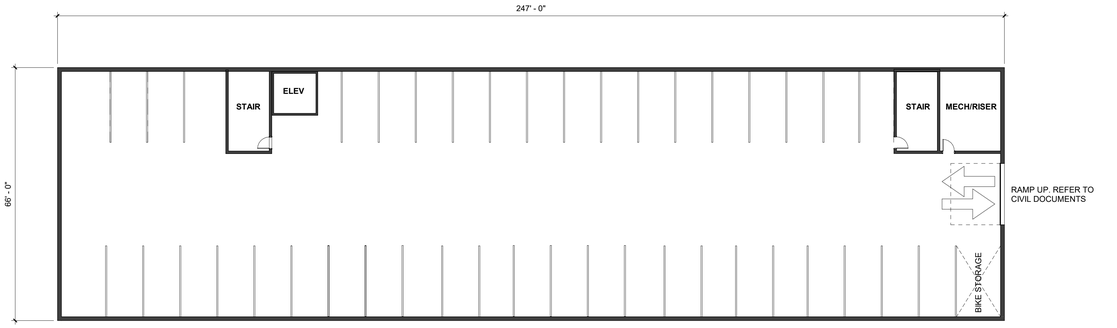
UNIT MATRIX

	STUDIO	1 BEDROOM	2 BEDROOM	TOTAL
5TH FLOOR	3	8	4	15
4TH FLOOR	3	8	4	15
3RD FLOOR	3	8	4	15
2ND FLOOR	2	8	4	14
GROUND/PARKING	-	-	-	-
TOTAL	11	32	16	59

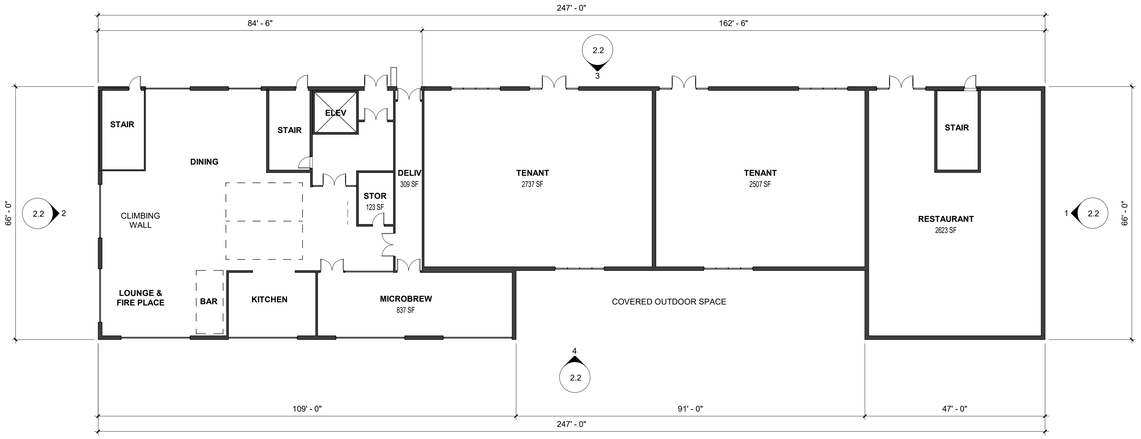
LOWER LEVEL PARKING: 40 STALLS



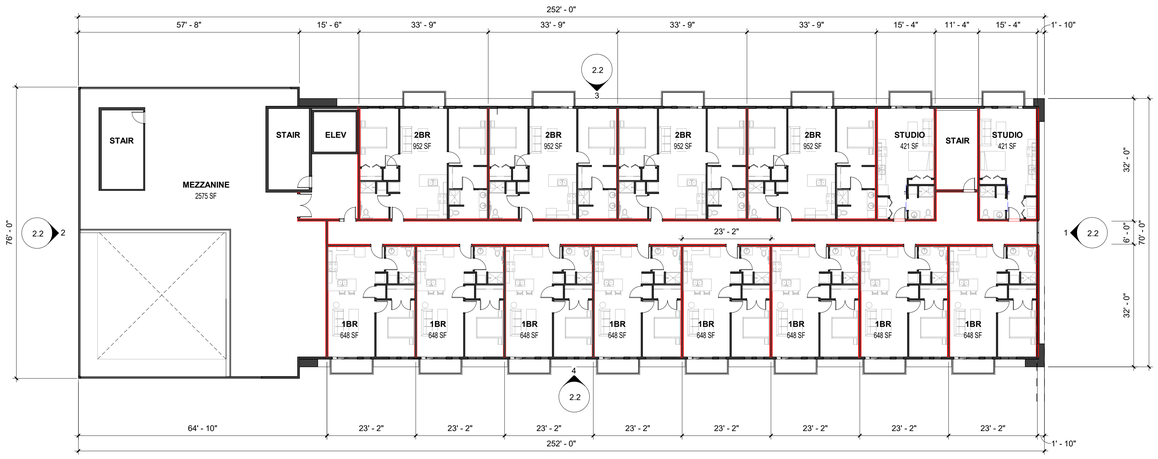




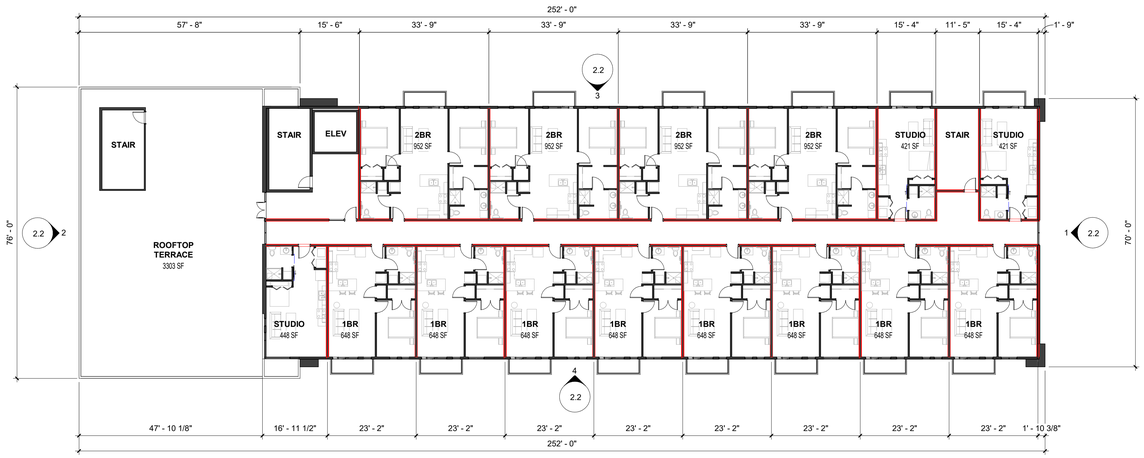
1 GARAGE LEVEL
1/16" = 1'-0"



2 FIRST FLOOR PLAN
1/16" = 1'-0"

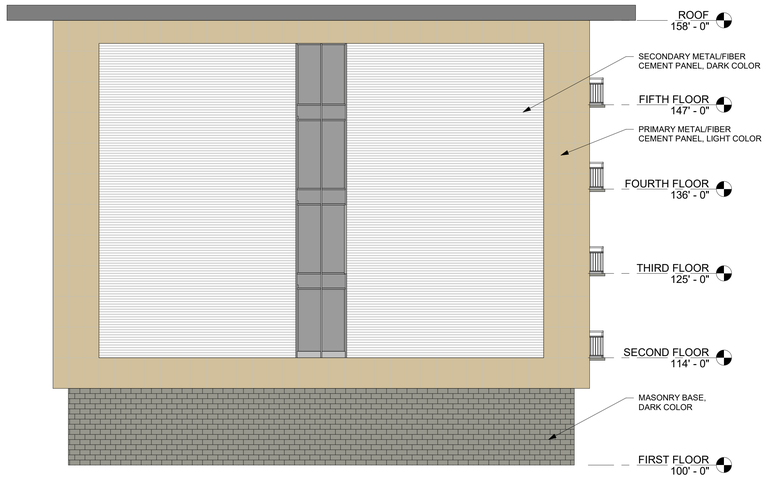


3 SECOND FLOOR PLAN
1/16" = 1'-0"

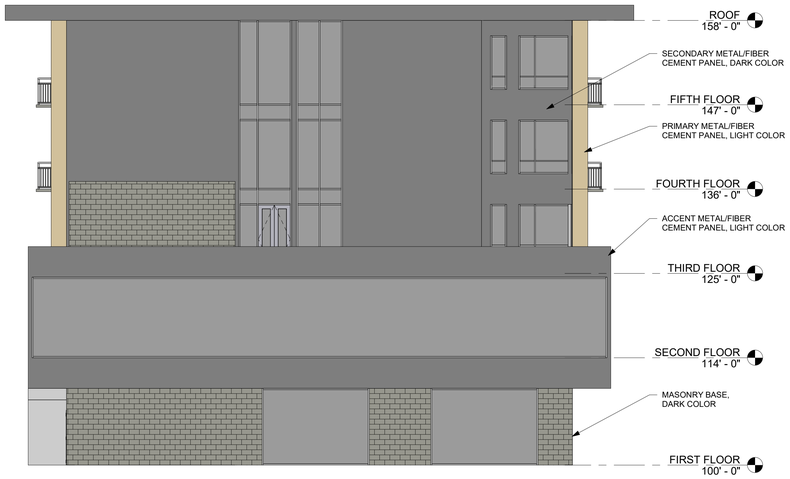


4 THIRD THRU FIFTH FLOOR PLAN
1/16" = 1'-0"

SOUTH BUILDING



1 SOUTH BUILDING - SOUTH ELEVATION
1/8" = 1'-0"



2 SOUTH BUILDING - NORTH ELEVATION
1/8" = 1'-0"



3 SOUTH BUILDING - EAST ELEVATION
1/8" = 1'-0"



4 SOUTH BUILDING - WEST ELEVATION
1/8" = 1'-0"

SOUTH BUILDING EXTERIOR ELEVATIONS

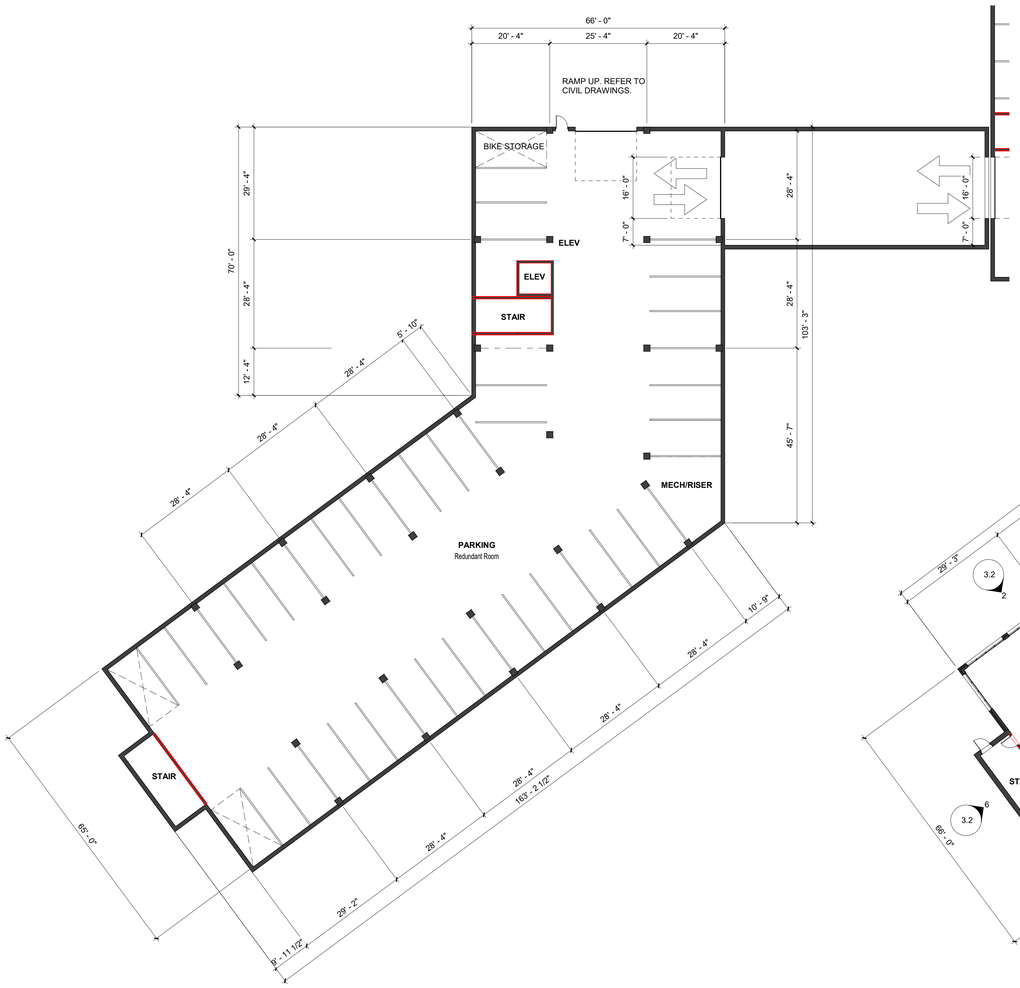
UNIT MATRIX

	STUDIO	1 BEDROOM	2 BEDROOM	TOTAL
5TH FLOOR	6	6	6	18
4TH FLOOR	6	6	6	18
3RD FLOOR	6	6	6	18
2ND FLOOR	6	6	6	18
GROUND/PARKING	-	-	-	-
TOTAL	24	24	24	72

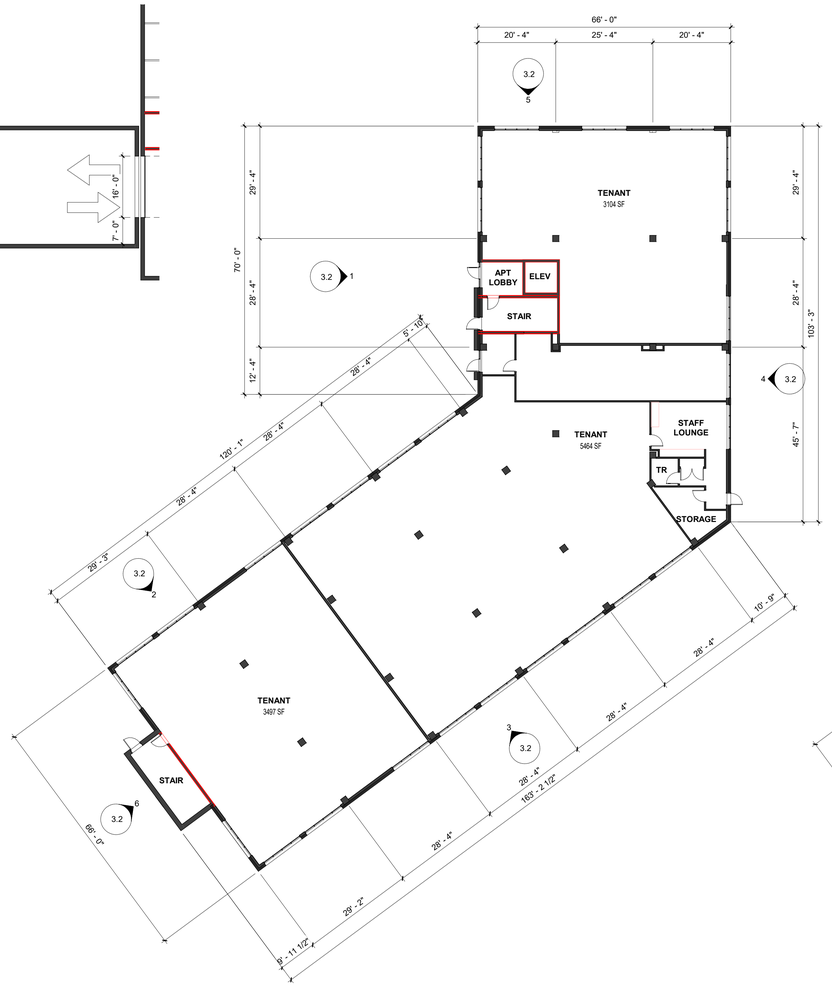
LOWER LEVEL PARKING: 36







3 GARAGE LEVEL
1/16" = 1'-0"



1 FIRST FLOOR PLAN
1/16" = 1'-0"



2 SECOND THRU FIFTH FLOOR PLAN
1/16" = 1'-0"

WEST BUILDING



1 WEST BUILDING - WEST ELEVATION A
1/8" = 1'-0"



2 WEST BUILDING - WEST ELEVATION B
1/8" = 1'-0"



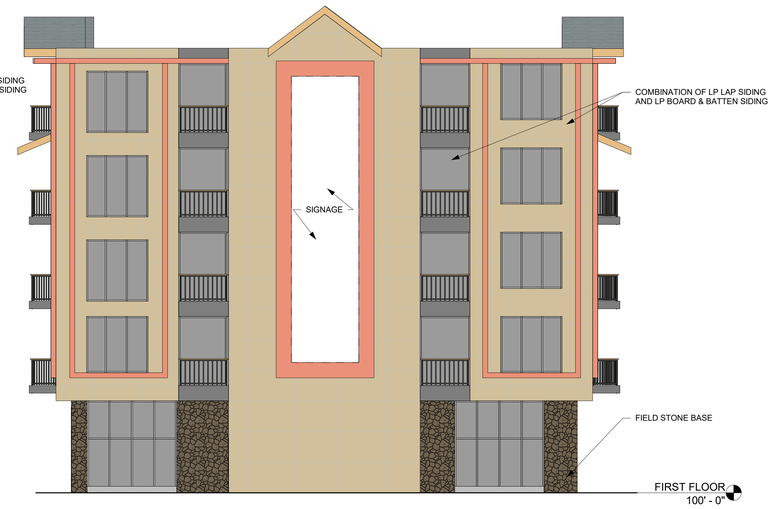
3 WEST BUILDING - EAST ELEVATION A
1/8" = 1'-0"



4 WEST BUILDING - EAST ELEVATION B
1/8" = 1'-0"



5 WEST BUILDING - NORTH ELEVATION
1/8" = 1'-0"



6 WEST BUILDING - SOUTH ELEV
1/8" = 1'-0"

WEST BUILDING EXTERIOR ELEVATIONS

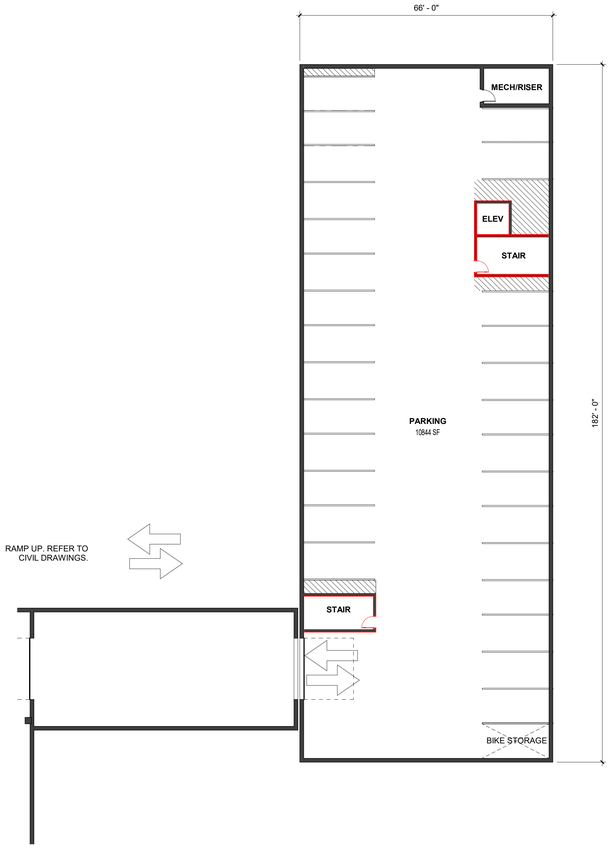
UNIT MATRIX

	STUDIO	1 BEDROOM	2 BEDROOM	TOTAL
5TH FLOOR	4	6	3	13
4TH FLOOR	4	6	3	13
3RD FLOOR	4	6	3	13
2ND FLOOR	4	6	3	13
GROUND/PARKING	-	-	-	-
TOTAL	16	24	12	52

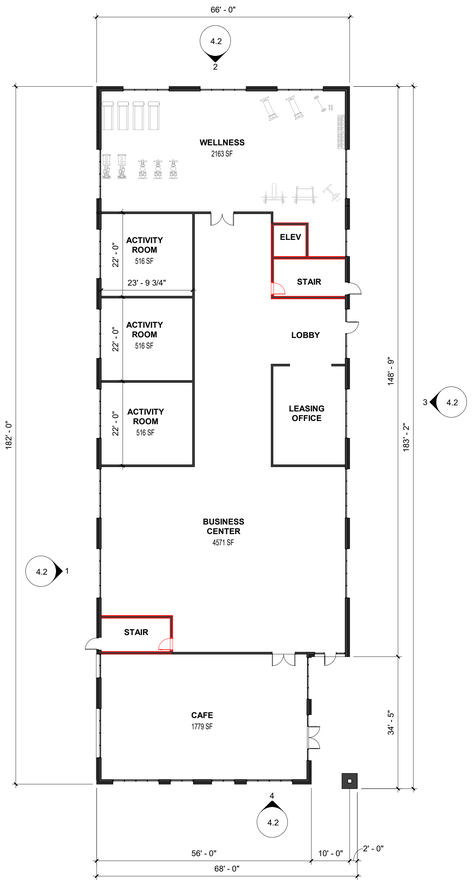
LOWER LEVEL PARKING: 30 STALLS



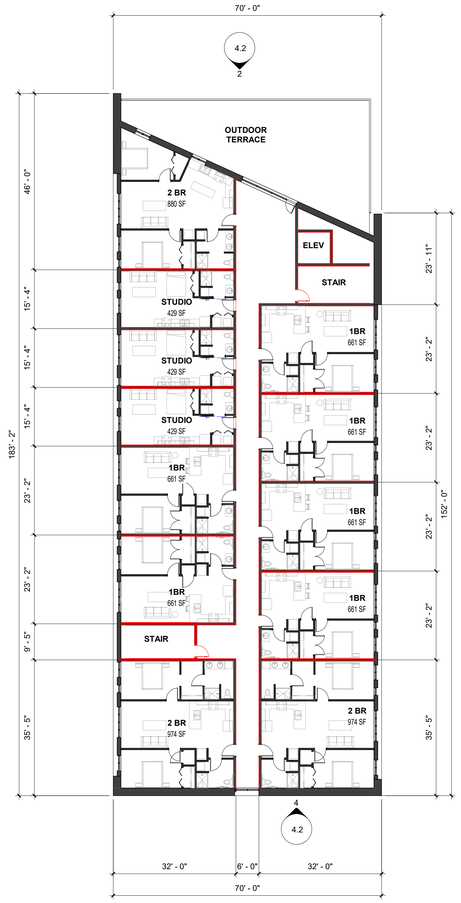




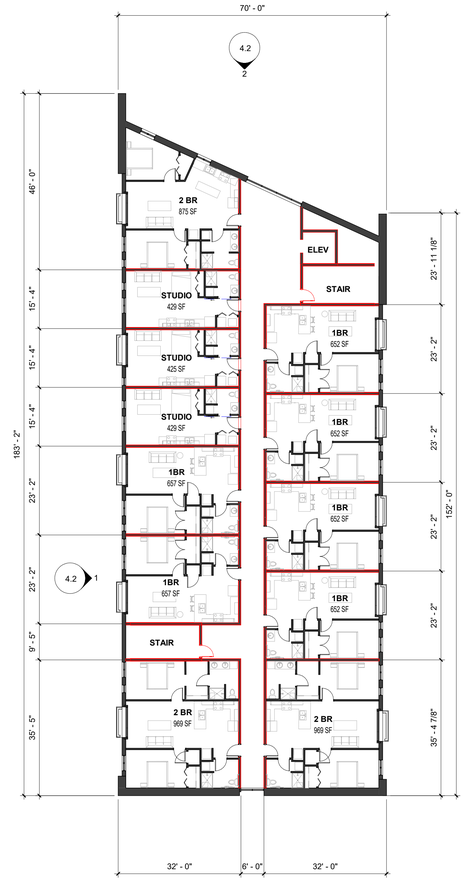
2 GARAGE LEVEL
1/16" = 1'-0"



1 FIRST FLOOR PLAN
1/16" = 1'-0"



3 SECOND FLOOR
1/16" = 1'-0"



5 THIRD THRU FIFTH FLOOR PLAN
1/16" = 1'-0"

EAST BUILDING



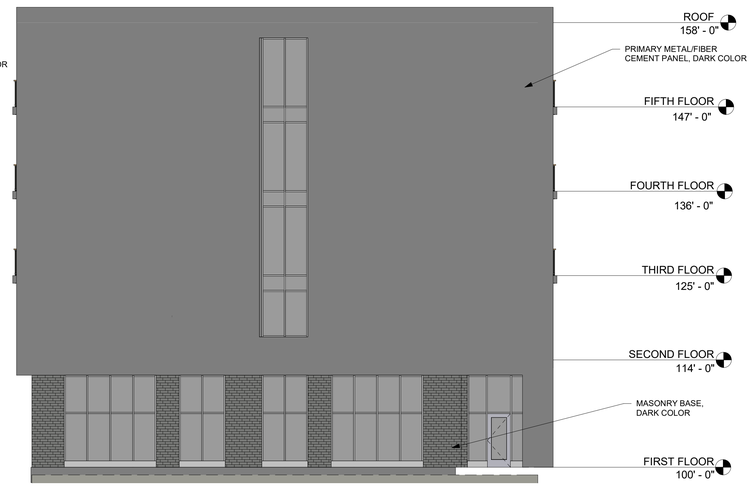
1 EAST BUILDIING - WEST ELEVATION
1/8" = 1'-0"



2 EAST BUILDING - NORTH ELEVATION
1/8" = 1'-0"



3 EAST BUILDING - EAST ELEVATION
1/8" = 1'-0"



4 EAST BUILDING - SOUTH ELEVATION
1/8" = 1'-0"

EAST BUILDING EXTERIOR ELEVATIONS

GRAND RIVER • GREAT CITY
La Crosse • Wisconsin

CITY PLANNING DEPARTMENT

MEMORANDUM

DATE: **MARCH 11, 2022**

TO: **DESIGN REVIEW COMMITTEE**
STEPHANIE MERDAN, ISG
KEVIN BILLS, ISG
KRIS ROPPE, ISG
JEREMY NOVAK, 360 REAL ESTATE SOLUTIONS, LLC
MARVIN WANDERS, 360 REAL ESTATE SOLUTIONS, LLC

FROM: **TIM ACKLIN, PLANNING & DEVELOPMENT DEPARTMENT**

SUBJECT: **COMMERCIAL DESIGN REVIEW PROJECT**
COPPER ROCKS DEVELOPMENT (2415 STATE RD)

Design Review Committee Members:
Cory Brandl, Police Department
Tim Acklin, Planning & Development Department
Matt Gallager, Engineering Department
Yuri Nasonovs, Engineering Department
Eddie Young, Community Risk Management Department
Jason Riley, Community Risk Management Department
Brian Asp, Utilities Department
Steve Cash, Fire Department
Bernie Lenz, Utilities Department
Dan Trussoni, Parks, Recreation, and Forestry Department
Jamie Hassemer, Engineering Department
Stephanie Sward, Engineering Department
Cullen Haldeman, Engineering Department

On March 4, 2022 plans were submitted to the Design Review Committee for review of preliminary plans for the Coper Rocks Development located at 2415 State Rd. The following comments/feedback have been provided.

All revised plans in accordance with this memo must be submitted to the Planning and Development Department for review, unless otherwise stated. No permits will be issued for this project by the Division of Fire Prevention and Building Safety until they receive written confirmation/approval from the Planning and Development Department.

Requirements Prior to Issuance of a Demolition or Footing &Foundation Permit

1) Approval of a Certified Survey Map. (If applicable)
2) Combination of parcels for project site. (If applicable)
3) Approval of Final Plans from the Engineering Department.
4) Approval of Final Plans from the Utility/Water Department.
5) Approval of Final Plans from the Division of Fire Prevention and Building Safety (Inspections)

Requirements Prior to Issuance of a Building Permit

1) Approval of Final Plans from the Planning and Development Department.

Requirements Prior to Issuance of an Occupancy Permit

1) A Letter of Credit in the estimated cost amount of the proposed landscaping has been submitted to the Planning and Development Department to guarantee the proper installation and growth of all landscape improvements proposed in the approved Landscape Plan **OR** all proposed landscaping in the approved Landscape Plan has been installed.
2) A stamped letter of substantial completion from the design engineer of the project within 10 days of completion.
3) Field review and approval of the completed stormwater management facility by the City's Utilities Department.

Engineering Department (Traffic) - (Contact-Matt Gallager-789-7392, Stephanie Sward-789-8171, Jamie Hassemer- 789-8182, Cullen Haldeman- 789-8185)

1) Will the surface stalls for the townhomes be labeled as per townhome residents only? (Stephanie Sward)
    a. Applicant-Yes
2) The parking stalls proposed on Farnam Street cannot be included in the total number of parking provided for the site since they are public on street parking. (Stephanie Sward)
3) Please show sidewalk connection with 25th Street S. (Stephanie Sward)
4) Change ROW line along Farnam Street to include new sidewalk in public right of way. (Stephanie Sward)
5) Provide dimensions of parking stalls along Farnam Street length and width of rectangular parking stall. (Stephanie Sward)
6) Provide dimensions of parking stalls (typical is adequate) (Stephanie Sward)
7) Provide driving aisle dimensions. (Stephanie Sward)
8) Provide ADA and access isle dimensions. (Stephanie Sward)
9) The sidewalk along State Road preferred width of 7 feet with a 1-foot utility strip. (Stephanie Sward)
10) Provide standard driveway taper for driveway on State Road. (Stephanie Sward)
11) Will need a photometric plan and cut sheets/specifications of the lighting fixtures.
    a. 1 ft candle average /uniformity 4 or better. (Jamie Hassemer)
12) Need grades on new and replacement sidewalks and curb ramps. (Cullen Haldeman)
13) ROW issue on Farnarm should be addressed as part of the CSM submittal for the site. (Matt Gallager)

Division of Fire Protection and Building Safety (Building and Inspections Department) (Contact-Eddie Young- 789-7582, Jason Riley- 789-7585)

1) State Plumbing Plans are required. (Jason Riley)
2) Show details of looped main. (surface laterals). (Jason Riley)
3) If tying into existing water off of Losey Blvd need to meet the City requirements for connection and design. (Jason Riley)
4) Must meet the City's meter policy. Policy attached. (Jason Riley)
5) Setbacks and parking spots can be approved by Council through zoning. – no issues
6) Will need separate permits for each building- Also includes state review.
7) Will need a Demolition Permit for existing building- CUP is required if demolition is desired before applying for building permits.
8) Any fencing and signage will need separate permits.

Police Department- Cory Brandl-789-7206

1) No comments have been provided at this time.

Planning Department-(Contact-Tim Acklin-789-7391)

1) Flat Roofs are permitted must incorporate a parapet wall on all sides unless rear is sloped for drainage. Should include architectural details appropriate to the building design that create a positive visual termination for the building. (M3-Commerical) (N4-Multi-Family)
2) Garage doors- encouraged to consider a window slat or some other feature to break up a wall look.

Utilities Department- (Bernie Lenz-789-7588, Brian Asp- 789-3897)

Water

1) The utility needs to see the details of the water lines include on future plans
    a. Pipe size
    b. Valve locations
    c. Any proposed cross connections, with check valves (tap records attached)
        i. https://library.municode.com/wi/la_crosse/codes/code_of_ordinances?nodeId=PTIGEOR_CH46UT_ARTIIWAUT_S46-40CRCOCO
    d. Meter and curb stop locations (meter access code attached)

Storm Sewer

1) You show tying into an existing catch basin, with this large property, the capacity of the catch basin lead concerns the city.
2) The storm sewer at the SE corner of the lot crosses the parcel lines, please address this in future plans.
3) You do show at least a small amount of surface flow from the neighboring parcel, please address this in future plans.

Sanitary Sewer

1) The capacity of the 8" sewer in Farnam St. is a concern to the utilities, if the 12" line is too shallow to connect to, please provide the city with flow calculations for the sanitary sewer to assess our capacity in the 8" line, and the lift station downstream.

Engineering Department (Stormwater) - (Contact-Yuri Nasonovs-789-7594)

1) Understanding: Developer will pursue same concept as 5th Ward residences.

2) Need to see completed and approved (by Scott Dunnum) CSM. Adequate drainage easements should be included.
3) Each proposed parcel will need to obtain separate WQML, stormwater permit and record Maintenance Agreement (same template as 5th Ward).
4) Provide model 40% TSS removal.
5) HydroCADD model is not necessary (1.5 ac. decrease in impervious area) but might be necessary to show load at the point(s) of connection to the public stormwater system. Concern: public system has adequate capacity.
6) 100-year safe passage.

Fire Department- (Contact-Steve Cash- 789-3868)

1) Sprinkler and Fire Alarm plans need State review and approval.
2) KNOX Box required for each building.
3) Any commercial spaces requiring a Hood Systems will need to be permitted separately.
4) Fire Department will need access to the center building of site. Need to see turning radius. The Fire Department access road to needs to meet NFPA 1 (2012) 18.2.3
5) Fire connection has to be within 150ft of hydrant.
    a. Private hydrant must meet specs, labeled and identify location on plans.

Parks, Recreation, and Forestry- (Contact-Dan Trussoni 789-4915)

1) Blvd space along Losey Blvd and State Rd- plantings on private land or ROW?
    a. State Rd on private land.
    b. Losey Blvd shows multi-stem- needs to be single stem. Please revise.
    c. Needs to be 35ft between trees in blvd
    d. Planting specifications needed on plan

MARCH 4, 2022

Tim Acklin
Planning Administrator
City of La Crosse, WI
400 La Crosse St.
La Crosse, WI 54601
acklint@cityoflacrosse.org

RE: GENERAL DEVELOPMENT PLAN SUBMITTAL – PROJECT DESCRIPTION
COPPER ROCKS REDEVELOPMENT – 2415 STATE ROAD, LA CROSSE, WI 54601

Tim,

Thank you for reviewing the following project information for the Copper Rocks Redevelopment located at 2415 State Road in La Crosse. The following materials are being submitted in support of this initial project review:

- Sketch Plan
- Parking Summary
- Draft Certified Survey Map
- Soil Resource Report for La Crosse County
- Preliminary Grading Plan
- Preliminary Landscaping Plan
- 360 Sustainability Plan

PROJECT DESCRIPTION

The former Kmart site at 2415 State Road in La Crosse is proposed to be redeveloped as a vibrant, community focused mixed-use development named 'Copper Rocks'. The proposed project will consist of three townhome buildings and three mixed-use buildings, as well as parking and outdoor community gathering space to create a vibrant and useful revitalization of the site. The developer will be seeking a rezoning from the current classification to Planned Development District (PDD) zoning allowing for mixed-use. This proposed zoning aligns with the City of La Crosse Comprehensive Plan, as the development will be focused on residents and sustainability.

As a key component of the requested rezoning action, a General Development Plan and various support materials are being provided. General Development Plan criteria are also outlined below along with a description of how the proposed plan will meet these standards.

GENERAL DEVELOPMENT PLAN CRITERIA

Requirements:

1. **Total area to be included in the Planned Development District, area of open space in acres and percent, proposed uses of land keyed to the comparable existing zoning districts, residential density computations (gross and net), proposed number of dwelling units, the approximate location of different types or densities of dwelling units, population analysis, availability of or requirements for municipal services and utilities and any other similar data pertinent to a comprehensive evaluation of the proposed development**

   The 6.3-acre subject property is currently comprised of a large parking lot and a vacant Kmart building. The property is zoned C-1 Local Business. The rezoning request to Planned Development District is being made to best match the nature of the redevelopment. PDD zoning will allow the site to be redeveloped to meet fundamental components of the 2002 City of La Crosse Comprehensive Plan: Confluence, as well as the City Vision 2020 Master Plan. Both plans build

upon key ideas such as the encouragement of mixed-use developments, increases in density, and redevelopment, all key parts of this project.

Six buildings are proposed to be constructed on the site, each containing residential units. The total number of residential dwelling units will be approximately two hundred and sixteen (216). As a key focus of the project is on current and future residents, the 216 residential units will be market-rate, workforce housing. This is defined as housing that is affordable for people who earn incomes from 60%-100% of the Area Median Income (AMI). In La Crosse County the AMI in 2019 was $63,298. For our analysis we use 35% of income allocated for housing. As a reference, Fannie Mae uses 45% debt-to-income ratio in their underwriting financing. This will allow for the development to house residents with a diversity of incomes and backgrounds and seeks to meet the goals of the 2002 City of La Crosse Comprehensive Plan: Confluence. Specifically, *Objective 9 – "Housing Options. Establish a mix of housing options, sizes, prices, styles, and tenancy"* of the Confluence plan will be met. (Table 1)

Area	*AMI*	*100% AMI Housing*	*80% AMI Housing*	*60% AMI Housing*
State of Wisconsin	$64,168	$1,870	$1,497	$1,123
La Crosse County	$63,298	$1,850	$1,475	$1,110

Table 1

According to data gathered by the American Association of Retired People, 28% of all households are single people living alone. Additionally, couples without children account for another 25%. Copper Rocks will have a diverse unit mix of studio through three bedrooms to meet housing demands for a wide variety of incomes and demographics with a focus on workforce affordable housing.

Of the six new buildings, three will offer mixed-use opportunities. These five-story mixed-use buildings will be constructed and placed in the center and southwest corner of the site, tight to the traffic corridor of Losey Boulevard and State Road (State Highway 33). The buildings have been intentionally massed a considerable distance from the existing single-family residences to soften the transition between the neighbors.

Each of these three buildings will have underground parking beneath, and the first floor will accommodate commercial space for lease and/or community space for use by the residents living in this development. The amount of commercial and community space to be included is estimated to be approximately 39,600 square feet.

Floors 2-5 of each mixed-use building will consist of residential apartments. The other three buildings on site will be strictly residential townhome buildings constructed along the northern end of the site along Farnam Street, orienting in an East-West fashion. These townhomes will be similar in design to the Canterbury townhomes at Campbell Road and Vine Street, developed by Three Sixty in 2017.

Existing municipal utilities currently serve the existing site and structure. It is anticipated that a new water, storm sewer, and sanitary service will be installed in Farnam Street to serve the development. Watermain, sanitary sewer, and storm sewer will be installed within the proposed project site as private infrastructure to serve the proposed buildings.

The project will incorporate a high degree of sustainable practices as guided by Three Sixty's commitment to sustainability, which is outlined in their attached Sustainability Plan.

2. **A general summary of the estimated value of structures and site improvement costs, including landscaping and special features.**

The overall project cost is currently estimated at approximately $50,000,000.

3. **A general outline of the organizational structure of a property owner's or management's association, which may be proposed to be established for the purpose of providing any necessary private services including proposed restrictive covenants.**

The subject property is currently owned by MKB Copper Rocks, LLC. Three Sixty Real Estate Solutions, LLC will be developing the site, and once completed, the development will be managed by Three Sixty Real Estate Solutions, LLC. Once completed, the development will be owned by single purpose entities (SPE) by asset or parcels. The SPEs are currently being drafted.

4. **Any proposed departures and requested waivers from the standards of development as set forth in other City zoning regulations, land division ordinance, sign ordinance and other applicable regulations.**

Section 113-9

As part of the redevelopment, the existing site will be subdivided into four separate parcels. MKB Copper Rocks and Three Sixty are requesting that the requirement for a subdivision plat per section 113-9 of the City of La Crosse Municipal Code of Ordinances be waived allowing for the use of a Certified Survey Map (CSM) to divide the existing lot as part of the PDD process.

The State Statutes require that no more than four lots of less than 1.5 acres can be created by CSM within 5 years. In 2020 a CSM was recorded splitting the parent parcel of the Kmart site into three parcels, two of which were under 1.5 acres in size. In order to meet the limit in the State Statues, only 2 of the proposed parcels will be under 1.5 acres.

Section 115-512

(b) Angled parking on Farnam Street and along Losey Boulevard does not meet building setback

(d) less than 15' landscaped buffer provided

(j) Parking for the two-bedroom apartment units is being provided at a rate of 1.5 stalls per bedroom with the intention that the remaining .5 spaces per bedroom will be accommodated through shared parking with the retail/commercial uses.

(o) No curb, parking blocks, or bollards between parking lot and sidewalks

Section 115-515

(a)(2) Under required shrub count for site

In regard to item F.3c "At least one tree and 10 shrubs per 600 sq. ft. of landscaped area", the tree requirement has been exceeded, 129 in total. The shrub count is 714 due to impracticality of the placement of what would be 1,141 shrubs on the site based on the calculation from the total landscape area.

Section 115-517

(c) 80% parking will not drain to rain garden
(e) No infiltration since site is redevelopment

Section 115-521

(b) Front doors of buildings do not face public streets

Section 115-555

Stormwater management requirements to follow Section 105-61

5. **The expected date of commencement of physical development as set forth in the proposal and also an outline of any development staging which is planned.**

The target date for demolition of the existing building and site is August 2022. It is anticipated that construction will occur in two phases with completion in the fall of 2024. Phase One will see the townhomes and west oriented mixed-use building constructed and Phase Two will see the other two mixed use buildings completed.

6. **The target date for demolition of the existing building and site is August 2022. It is anticipated that construction will occur in two phases with completion in the fall of 2024. Phase One will see the townhomes and west oriented mixed-use building constructed and Phase Two will see the other two mixed use buildings completed. A sketch plan depicting the proposed lot layout, street configuration, utilities, and open space.**

Please see the attached sketch plan.

7. **A legal description of the boundaries of lands included in the proposed Planned Development District.**

Please see the attached draft Certified Survey Map for the legal description which details the property boundaries.

8. **A description of the relationship between the lands included in the proposed Planned Development District and surrounding properties.**

The three townhome buildings constructed along the northern end of the parcel will have front doors and porches opening to Farnam Street. On the other side of the townhomes, roof-top patios will face the development with southern exposure. The townhomes are similar in use to the land across the street to the north and west sides of the development, which is residential and zoned R1 - Single Family. These buildings will be architecturally attractive and will blend and scale into the single-family neighborhood to the north. On Farnam Street we are asking the city to consider traffic calming measures such as pedestrian bump-outs and on-street, angled parking along the south side of the street in an effort to keep the street safe and friendly to pedestrians and residential use.

The three mixed use buildings located in the southwest and southern sections of the parcel will be community oriented. A combined total of 39,600 square feet of commercial and community space will be offered on the ground level, which can be utilized by residents living in the townhomes and floors 2-5 of the mixed-use buildings, as well as by other community members / business patrons. In addition to the building space, there will be outdoor spaces focused on

community and recreational use, including areas for seating and dining, a play area, outdoor fire pits, benches, and seating for viewing small performances. These outdoor uses will be concentrated in the southwestern section of the parcel, in between the three mixed use buildings. These community features and facilities will offer the surrounding neighborhood with valuable amenities that they can enjoy. Our goal is to create a place that is so well loved that it takes care of itself.

To the south and west of the development, land is zoned C1 Local Business and C2 Commercial, with a variety of businesses such as the restaurants: Las Margaritas, Domino's Pizza, Subway, and JavaVino; as well as other services such as: Sports Clips, Allstate Insurance, and Festival Foods. These businesses will support the residents by providing a variety of goods and services all within walking distance from their homes. In turn, the development will bring in more consumers to support nearby businesses.

9. **The location of institutional, recreational and open space areas, common areas and areas reserved or dedicated for public uses, including schools, parks, and drainageways.**

As mentioned in the latter section, the development will provide valuable recreational and open common areas, dedicated for the use of residents and the public. These will be concentrated in the southwestern section of the parcel, in the center of the three mixed use buildings.

In the very southwestern section of the land, there will be a grass covered gathering space, a small performing area, seats to view the performance, and outdoor patio seating for the brewery planned within the southernmost building. Between the southernmost building housing the brewery and the central building, there will be more patio space, outdoor fire pits, as well as a walking path and a variety of trees to green the area. Finally, to the north of the central building will be a small play area for children, space for resting (allowing for the placement of hammocks and benches), complemented by additional green space. There are plans for a fenced in dog "run" for residents with dogs to use for their waste. It will be located along the eastern property line next to the dumpster carrel.

10. **Characteristics of soils related to contemplated specific uses.**

Please see the Soil Resource Report for La Crosse County. A full geotechnical investigation will be completed by Braun Intertec in early April.

11. **Existing topography on site with contours at no greater than two-foot intervals City Datum where available.**

Please see the attached preliminary grading plan.

12. **General landscaping treatment.**

Please see the attached preliminary landscaping plan.

Please contact me at 608.789.2034 or via email at Stephanie.Merdan@ISGInc.com with any questions or if there is any additional information we can provide in support of this project.

Sincerely,



Stephanie Merdan
Senior Project Coordinator
Stephanie.Merdan@ISGInc.com

Preliminary Review Request 03/04/2022

COMMERCIAL DEVELOPMENT DESIGN STANDARDS APPLICATION

Planning Department · Phone 608.789.7512 · Fax 608 789.7318
http://www.cityoflacrossse.org Planning@cityoflacrosse.org

Permit No.:	
Date:	
STATUS:	Parcel No.:

OWNER

Name: MKB Copper Rocks, LLC - Kirk Stoa			
Address: 3800 Emerald Drive E.			
City: Onalaska, WI 54650			
Phone: (608) 779-2702	Cell: (608) 738-3499	Fax:	E-mail: kstoa@festfoods.com

ARCHITECT CONTRACTOR

Name: ISG - Stephanie Merdan, Senior Project Coordinator			
Address: 201 Main Street, Suite 1020			
City: La Crosse, WI 54601			
Phone: (608) 789-2034	Cell: (507) 330-2789	Fax:	E-mail: Stephanie.Merdan@ISGInc.com

PROJECT

Check One: ☒ Building ☐ Addition ☐ Alteration/Remodel

Description of Work:

The former Kmart site at 2415 State Road in La Crosse is proposed to be redeveloped as a vibrant, community focused mixed-use development named 'Copper Rocks'. The proposed project will consist of three townhome buildings and three mixed-use buildings, as well as parking and outdoor community gathering space to create a vibrant and useful revitalization of the site. The developer will be seeking a rezoning from the current classification to Planned Development District (PDD) zoning allowing for mixed-use. This proposed zoning aligns with the City of La Crosse Comprehensive Plan, as the development will be focused on residents and sustainability.

Pre-application Meeting Date: 02/25/2022

Applying for Exception: ☒ No ☐ Yes (Include $300 Check for Public Notification)

PROPERTY

Project Address: 2415 State Road		
Zoning District: C1-Local Business to PDD	Parcel Number: 17-50298-32	
Address: 2415 State Road	Address same as property owner's address: ☐	
City: La Crosse	State: WI	Zip Code: 54601

OFFICIAL USE ONLY

Date Received: Review Date:

Exception Check: ☐ Yes ☐ No

Required Information: ☐ Site Plan ☐ Architecture Plan ☐ Landscape Plan ☐ Building Elevations & Materials ☐ Exterior Light Diagram ☐ LEED Checklist ☐ Photos

The applicant agrees that all design aspects and maintenance plans are in accordance with the requirements of Section 15.47 of the Code of Ordinances for the City of La Crosse. Application, the checklist, and seven (7) sets of required information must be submitted to the City Inspection Department prior to review and acceptance.

Kevin M. Bills, AIA - ISG
(PRINT) Architect/Engineer Name

Kevin M. Bills 03/03/2022
Signature (Architect/Engineer) Date

Kirk Stoa - MKB Copper Rocks, LLC
(Print) Owner Name

03/03/2022
Signature (Owner) Date

Preliminary Review Request 03/04/2022

MULTIFAMILY HOUSING DESIGN STANDARDS APPLICATION

Planning Department · Phone: (608) 789-7512 · Fax: (608) 789-7318
http://www.cityoflacrosse.org Planning@cityoflacrosse.org

Permit No:	
Date:	
STATUS:	**Parcel No.:**

OWNER

Name: MKB Copper Rocks, LLC - Kirk Stoa			
Address: 3800 Emerald Drive E.			
City: Onalaska	State: WI		Zip Code: 54650
Phone: (608) 779-2702	Cell: (608) 738-3499	Fax: ( ) -	Email: kstoa@festfoods.com

ARCHITECT CONTRACTOR

Name: ISG - Stephanie Merdan, Senior Project Coordinator			
Address: 201 Main Street, Suite 1020			
City: La Crosse	State: WI		Zip Code: 54601
Phone (608) 789-2034	Cell: (507) 330-2789	Fax: ( ) -	Email: Stephanie.Merdan@ISGInc.com

PROJECT

Check one: ☒ Building ☐ Addition ☐ Alteration/Remodel

Description of Work:

The former Kmart site at 2415 State Road in La Crosse is proposed to be redeveloped as a vibrant, community focused mixed-use development named 'Copper Rocks'. The proposed project will consist of three townhome buildings and three mixed-use buildings, as well as parking and outdoor community gathering space to create a vibrant and useful revitalization of the site. The developer will be seeking a rezoning from the current classification to Planned Development District (PDD) zoning allowing for mixed-use. This proposed zoning aligns with the City of La Crosse Comprehensive Plan, as the development will be focused on residents and sustainability.

Pre-Application Meeting Date: 02/25/2022

Applying for Exception: ☐ No ☒ Yes (include $300 check for public notification)

PROPERTY

Project Address:

Zoning District: C1-Local Business to PDD Planned Development District		Parcel Number: 17-50298-32
Address: 2415 State Road		Address information same as property owner: ☐
City: La Crosse	State: WI	Zip Code: 54601

OFFICE USE ONLY

Date Received	
Review Date	
Exception Check	☐ Yes ☐ No
Required Info	☐ Architectural Plan ☐ Site Plan ☐ Exterior Light Fixture Locations ☐ Photos ☐ Street façade diagram ☐ Design Standards Checklist/LEED Checklist ☐ Landscaping Plan

The applicant agrees that all design aspects and maintenance plans are in accordance with the requirements of Section 15.46 of the Code of Ordinances for the City of La Crosse. Application, the checklist, and seven (7) sets of required information must be submitted to the City Inspection Department prior to review and acceptance.

Kevin M. Bills, AIA - ISG
(PRINT) Architect/Engineer Name

Kevin M. Bills 03/03/2022
Signature (Architect/Engineer) DATE

Kirk Stoa - MKB Copper Rocks, LLC
(PRINT) Owner Name

03/03/2022
Signature (Owner) DATE

DESIGN REVIEW CHECKLIST

The checklist must be completed in full by the applicant prior to submission. Completed elements should be checked. Any elements that do not apply to your site or you are requesting an exception on, check the corresponding column and include notes. Items in italics are recommended actions but not required.

		YES	NO	N/A	NOTES
C.2	Parking stalls no closer to street than the building	☐	☒	☐	
C.3	No driveway to the street if lot has alley access	☐	☐	☒	
C.4	Minimum of a 15' landscape buffer between the building and the parking	☐	☒	☐	
C.5	Parking is a minimum of 5' set back from all property lines *(except alley)*	☒	☐	☐	
C.6	Planting islands in parking lot with 12 spaces, and an extra planting island for every additional 20 spaces	☒	☐	☐	
C.7	*In place of C.4, C.5, & C.6*, the rear yard sets aside green space totaling 15% of lot	☒	☐	☐	
C.8	Buffers, setbacks, and planting islands may be used for stormwater infiltration.	☐	☐	☒	
C.9	There is pavement, concrete curb, and gutter in all parking areas with 8 or more spaces	☒	☐	☐	
C.10	Minimum of one off-street parking space per bedroom	☐	☒	☐	
C.11	All parking spaces at least 8.5' by 17'	☒	☐	☐	
C.12	Drive aisle meets minimum width requirement	☒	☐	☐	
C.13	If at least 25% of paved areas uses paving blocks, parking increased by no more than 5%	☐	☐	☒	
C.14	Parking lots on same lot as principle structure	☒	☐	☐	
C.15	Techniques used along edges and parking edges to prevent motor vehicles on grass areas	☐	☒	☐	
C.16a	Parking lot snow storage area(s) designated in parking lot and/or green space buffers	☒	☐	☐	
C.16b	Snow storage area(s) are not within the required outdoor recreational space	☒	☐	☐	
C.16c	Snow Storage area(s) are not located near parking entrances	☒	☐	☐	
C.17	Light-colored and/or reflective surfaces coatings for parking lots	☐	☐	☒	
C.18	Low-impact paving materials and methods used	☐	☐	☒	
C.19	Porous paving materials use to reduce stormwater runoff	☐	☐	☒	
D.2	Pedestrian routes designated and paved	☒	☐	☐	
D.3	Pedestrian routes use concrete or other approved material *(no asphalt or similar material)*	☒	☐	☐	
D.4	Pedestrian routes use porous paving material	☐	☒	☐	
E.2	Site and building plans show all required items	☒	☐	☐	
E.3	No service, utility, or mechanical features within 10' of building front *(except mailboxes)*	☒	☐	☐	
E.4	Trash and recycling containers screened	☒	☐	☐	
E.5	Trash and ash cans at each entrance serving 2 or more units	☒	☐	☐	
E.6a	Heating appliances are located inside the building	☒	☐	☐	
E.6b	High energy gas appliances' intakes and exhaust vents located on the side or rear away from sidewalks, trees, & shrubs	☒	☐	☐	
E.6c	Window-mounted air conditioners are not located in windows facing the street	☐	☐	☒	
E.6d	"Magic Pak" air conditioner/heat pump units on street facing facades	☒	☐	☐	
E.6e	Wall-mounted air conditioners facing the street are masked or blend in with the exterior siding and finishes	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
E.6f	Heat pumps or air conditioners located on the ground are on one side or the rear of the building and are screened	X			
E.6g	Heat pumps or air conditioners located on the roof are one side or the rear of the building and are screened			X	
E.7a	One bike parking space provided for every three bedrooms.	X			
E.7b	Bicycle parking *(accommodating four bicycles)* is at least 9' by 6' or 54 sq.ft. and increase by the same ratio for any additional bike parking spaces.	X			
E.7c	Exterior bicycle parking are either ribbon racks or bike racks.	X			
E.7d	Exterior bike parking areas is located inside/near building entries that is well-lit and not in the front yard or placed to interfere with pedestrian circulation	X			
E.7f	Bikes are not stored, locked, or chained on decks, patios, fences, or any other exterior locations other than in bike racks designed for bicycle parking	X			
E.7g	Bicycle parking areas uses porous pavers *(except the bike rack base is concrete)*			X	
E.8	No outdoor vending machines	X			
F.2	Landscape plan addresses all parts of the parcel and indicates maintenance requirements	X			
F.3a	At least one shade tree per 40 linear feet of lot frontage	X			
F.3b	At least one tree placed in the boulevard per 40 linear feet of lot frontage	X			
F.3c	At least one tree and 10 shrubs per 600 sq. ft. of landscaped area		X		
F.4	Plant size minimum standards have been met in landscape plan	X			
F.5	Boulevard tree species are from the City's approved list	X			
F.6	No *Poplar, Box Elder, Catalpa, Mountain Ash, Willows, Birch, Conifers, Hackberry,* or *Elm* trees	X			
F.7	Existing healthy trees are preserved and indicated in landscape plan			X	
F.8	Landscaping reinforces pedestrian routes	X			
F.9	Parking areas screened from street by shrubs or by other natural landscape screening			X	
F.10	Required sq. ft. of outdoor recreational area on ground level	X			
F.11	Building(s) designed to create usable open space	X			
G.2a	Walls and fences in the front yard do not exceed 4' in height above the finished grade			X	
G.2b	Walls and fences follow the height restrictions in the side and back yards	X			
G.2c	Any fence & retaining wall in the front yard setback that exceed 4' in height has a fence that is least 50% transparent			X	
G.3a	Wall and fence materials coordinated with building materials				
G.3b	Green treated lumber fences are stained or painted			X	
G.3c	Plastic coated chain link fences are not in the front yard or side yard on corner lots			X	
G.3d	Walls constructed with smooth faced concrete bricks/blocks are covered by brick or some other decorative block or dimensional material			X	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
G.4	Fences over 4' in height and/or 50' in length provide a variety of articulation and include at lease one of the following elements: changes in plane, expression of structure, variation of material	☐	☐	☒	
H.2	Stormwater Management and Erosion Control Plan coordinates with Landscape and Open Space Plan and designed by a RLA, Architect, or PE	☒	☐	☐	
H.3	Parking lots with 3 or more spaces direct 80% of water to on-site infiltration basin or rain garden and equals at least 10% of impervious parking and drive area	☐	☒	☐	
H.4	Stormwater is not discharged across sidewalks or neighboring parcels	☒	☐	☐	
H.5	100% of water from 2-year storm infiltrated on-site *(20,000 SF+)*	☐	☒	☐	
H.6	Stormwater facilities designed to enhance appearance of site	☒	☐	☐	
I.2	Exterior lights are residential models and spec sheets are submitted	☒	☐	☐	
I.3	Uniform outdoor pedestrian lighting	☒	☐	☐	
I.4	Parking lot light fixtures no higher than 16' above ground	☒	☐	☐	
I.5	All fixtures are full-cut-off design	☒	☐	☐	
I.6	Overhead light sources not visible from property line w/ 0.5 HFC 25 ft. from property line	☒	☐	☐	
I.7	Lighting levels for parking lot and pedestrian routes are met	☒	☐	☐	
I.8	Exterior entries and garages are designed to have exterior lights	☒	☐	☐	
I.9	Exterior lighting has automatic controls to allow for house number(s) to be visible	☒	☐	☐	
I.10	Exterior lighting along sidewalks and along/inside of parking lots have automatic controls	☒	☐	☐	
I.11	Motion sensor lights, if used, meet the desired standards (≤16ft. above ground, ≤ 2 150 Watts ea., ≥30˚ downward angle, etc.)	☒	☐	☐	
J.2	Balconies/patios facing the street are incorporated into the architectural facade of the building and does not encroach the building setback area by more than 25%	☒	☐	☐	
J.3	No ground level patios/decks facing the street unless landscaped screening is present on at least 2 sides of the patio/deck	☒	☐	☐	
J.4	Any exterior stairs leading to a deck or balcony is entirely in the rear yard; any exterior corridors must not be visible from the street, must be within the building footprint and must be covered by the building's roof	☒	☐	☐	
J.5	Minimum 42" wall or railing for rooftop patio/deck; only outdoor furniture permitted	☒	☐	☐	
K.2	Building plans approved by AIA architect *(50,000+ cubic feet)*	☒	☐	☐	
K.3	Photos of at least 4 street views of nearby blocks submitted with this checklist	☒	☐	☐	
K.4	Building design provides human scale, interest, and variety using at least one of the following methods: variation in building form, diversity of windows, emphasis of building entries, and/or variation of materials	☒	☐	☐	
K.5	Technique(s) used to minimize apparent height *(3+ stories)*	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
K.6	If the building is more than 50% wider than adjacent building, one of the following techniques shall be used to minimize the apparent width: articulate the facade with projections or bays, and/or use architectural elements such as porches, bay windows, and covered entries	☐	☐	☒	
K.6+	The total area of windows and doors on the street facing facade(s), including trim, shall not be less than the twenty (20) percent of the total facade minus gable	☒	☐	☐	
K.7	Windows and door area on street facade at least 20% of total facade *(excluding gables);* diagram illustrating compliance submitted with this checklist	☒	☐	☐	
K.8	Building built to front setback line or follow existing pattern *(avg of adjacent properties)*	☐	☐	☒	
K.9	The building's square footage is less than three times as large as nearest single family residence and is no more than 15' taller (*Washburn Res. District, R-2 District, TND, or in R-3 to R-6 Districts w/ 50%+ parcels zoned R-1)*	☐	☐	☒	
K.10	Received DRC review and approval prior to submittal to the Heritage Preservation Commission for its review and approval *(Historic Districts or adjacent to any designated historic building)*	☐	☐	☒	
L.2	Primary entrance is on front elevation and faces street	☐	☐	☒	
L.3	No more than two entrances per facade *(except in row houses, and in that case, row house entrance requirements are met)*	☒	☐	☐	
L.4	Building entrances emphasized	☒	☐	☐	
L.5	Main entrances covered at least 3 feet	☒	☐	☐	
M.2	All wall openings articulated	☒	☐	☐	
M.3a	Windows keep with the architectural character of the building	☒	☐	☐	
M.3b	Windows have an interior locking or securing mechanism	☒	☐	☐	
M.3c	Windows that open come with an insect resistant screen	☒	☐	☐	
M.4a	Exterior entry doors for individual units are residential in style and are solid or insulated; if there is not a translucent window lower than 5', it must have a security peephole	☒	☐	☐	
M.4b	Exterior doors have hardware matching the style of the building	☒	☐	☐	
M.4c	Sliding doors have an insect resistant screen door	☐	☐	☒	
M.4e	If a garage or accessory building entry door faces a street, alley or public sidewalk it is residential in style	☐	☐	☒	
M.4f	No sliding doors onto patios on the front facade	☒	☐	☐	
N.2	Gable ends 25' or wider have at least a 5/12 pitch with eaves extend 24" and rakes extend 12" beyond exterior wall; if there are eaves, they must be 18" for a 6/12 pitch roof or less	☒	☐	☐	
N.3	Pitched roofs at least 5/12 pitch and at least one gable facing street	☒	☐	☐	
N.4	Flat roofs use parapet walls with appropriate details	☐	☐	☒	
N.5	Large roof, ≥forty (40) ft., articulated with features to minimize apparent bulk: dormers, shifts in height, cupolas, eyebrows, chimneys, or other features	☒	☐	☐	
N.5+	Stormwater from gutters or roof drains do not drain onto sidewalks or neighboring properties.	☒	☐	☐	

DESIGN REVIEW CHECKLIST

		YES	NO	N/A	NOTES
O.2	The use of identical materials on all sides of building or higher quality materials on street facing facade(s) and complementary materials on non-street sides	☒	☐	☐	
O.3	Use of decorative accessories and trim in the form of *f*rieze boards, vertical corner trim, drip caps, gable vents, shingles, and shakes	☒	☐	☐	
O.4	Exterior finish materials do not include vinyl less than 0.44 thick, plywood, chipboard, T1-11, asphalt siding, or smooth-faced concrete block	☒	☐	☐	
O.5	Changes in color and materials occur between horizontal bands to establish “base”, “middle,” and “top,” of building	☒	☐	☐	
O.6	Natural wood is painted or stained (except cedar, redwood, or other naturally weather resistant species & is intended to be exposed); treated wood is painted or stained	☐	☐	☒	
O.7a	Color and design is in general harmony with the overall existing neighborhood and energy use conscious	☒	☐	☐	
O.7b	Neutral or natural colors used for primary siding with brighter or darker colors for accent and trim	☒	☐	☐	
O.7c	Complimentary multi-color and textured roofing materials that are interesting and cooler in summer months	☒	☐	☐	
O.7d	Location on the lot and exterior design is balanced and fits with the natural landscape of the lot and the general neighborhood	☒	☐	☐	
P.2	No street-facing garages on lot served by alley	☒	☐	☐	
P.3	Total width of garage doors facing street ≤ 50% of building width	☐	☐	☒	
P.4	Garages, carports, & accessory buildings are architecturally compatible and use the same finish materials as the primary building	☒	☐	☐	
P.5	Garages have at least one window, containing no less than 576 square inches per 2 stalls	☐	☐	☒	
P.6	Unattached garages shall have at least one service door	☐	☐	☒	
Q.2	Soundproofing used in all shared interior walls and floors and have a STC that meet sec. 1207 of the IBC	☒	☐	☐	
Q.3	Buildings and sites qualify for LEED for Homes certification *(30 of the possible 108 points on checklist)*	☐	☐	☒	
R.2	Long-term maintenance program for all exterior aspects of development	☒	☐	☐	

This stormwater management narrative has been prepared to accompany the preliminary plans for the proposed Copper Rocks Development which will be located at 2415 State Road. The property will be a Planned Unit Development and will need to meet the requirements of the City of La Crosse Commercial Design Standards Handbook. The project will consist of the construction of 3 mixed use multi-family apartments and 3 townhomes, along with concrete pavement, concrete walk, utilities, erosion control, stormwater management, and landscaping.

A geotechnical Investigation will be completed by Braun Intertec, Inc. to aid in the design of the stormwater management for the site.

DESIGN STANDARDS

The existing site is currently a commercial retail store and parking lot. Therefore, the project will follow redevelopment standards from NR 151 and City of La Crosse Municipal Code of Ordinances as listed in the table below.

Table 1. Design Criteria

	Performance Standard	Requirements
Wisconsin Department of Natural Resources NR 151	Total Suspended Solids NR 151.122	Redevelopment – 40% TSS reduction from parking areas and roads.
	Peak Discharge NR 151.123	Exempt per NR 151.123(2)(b) – Redevelopment Site.
	Infiltration NR 151.124	Exempt per NR 151.124 (3)(b)3 – Redevelopment Site.
	Protective Areas NR 151.125	N/A – No protective areas within proposed site.
	Fueling & Vehicle Maintenance NR 151.126	N/A – No fueling or vehicle maintenance areas within proposed site.
	Location NR 151.127	BMP's will be located on site.
	Timing NR 151.128	BMP's will be installed prior to final stabilization.
City of La Crosse Municipal Code of Ordinances Section 105-61	Total Suspended Solids Sec. 105-61(b)(4)a.	Redevelopment – 40% TSS reduction from parking areas and roads.
	Peak Discharge Sec. 105-61(b)(4)b.	Maintain or reduce 2-yr and 10-yr 24-hour post construction peak runoff to predevelopment rates
	Safe Outlet Sec. 105-61(b)(4)c.	Safe passage of 100-year storm event
	Infiltration Sec. 105-61(b)(4)d.	Redevelopment site (exempt)
	Protective Areas Sec. 105-61(b)(4)e.	N/A – No protective areas within proposed site
	Fueling and vehicle maintenance Sec. 105-61(b)(4)f.	N/A – No fueling or vehicle maintenance areas within proposed site.
	Swale Treatment for Transportation Facilities Sec. 105-61(b)(4)f.	N/A

The disturbed area for this project is 6.3 acres and will decrease the onsite impervious area by approximately 1.5 acres compared to current conditions. Due to the fact that the disturbed area for this project is over an acre, a Wisconsin DNR WPDES permit will be required along with City Stormwater Management Permits.

EXISTING CONDITIONS

The existing site consists of a commercial building and paved parking lot. The existing parking lot drains to on site storm sewer that ties into Farnam Street to the north into existing City storm sewer. The existing building roof drains also tie into the existing City storm sewer.

PROPOSED CONDISTIONS

The proposed site includes 3 townhomes, 3 apartment buildings, parking, sidewalk, and pedestrian facilities. The proposed site will drain to catch basins and storm sewer that will tie in to Farnam Street similar to existing conditions. The proposed site decreases impervious area from existing conditions by approximately 1.5 acres which is anticipated to reducing the amount of flow and volume from the site to meet peak runoff requirements.

STORMWATER MANAGEMENT SUMMARY

Proposed stormwater management facilities for the project will include underground filtration or sedimentation devices to provide TSS removal for site runoff prior to leaving the site.

Water quantity calculations will be completed using hydraulic models developed by utilizing the design data and the HydroCAD Version 10.10-6a computer modeling system. Hydrographs for existing and proposed scenarios will be generated and routed through these models using the Atlas-14 rainfall distribution. The proposed runoff from the events will be analyzed to ensure flow is maintained or reduced compared to existing conditions and the 100-year storm event is safely conveyed by the proposed stormwater management for the site.

Water quality calculations will be completed by utilizing the design data and the WinSLAMM Version 10.4.1 computer modeling system to show that the proposed conditions meet the City and State requirements to reduce total suspended solids by 40% from parking areas and road surfaces compared to no controls.

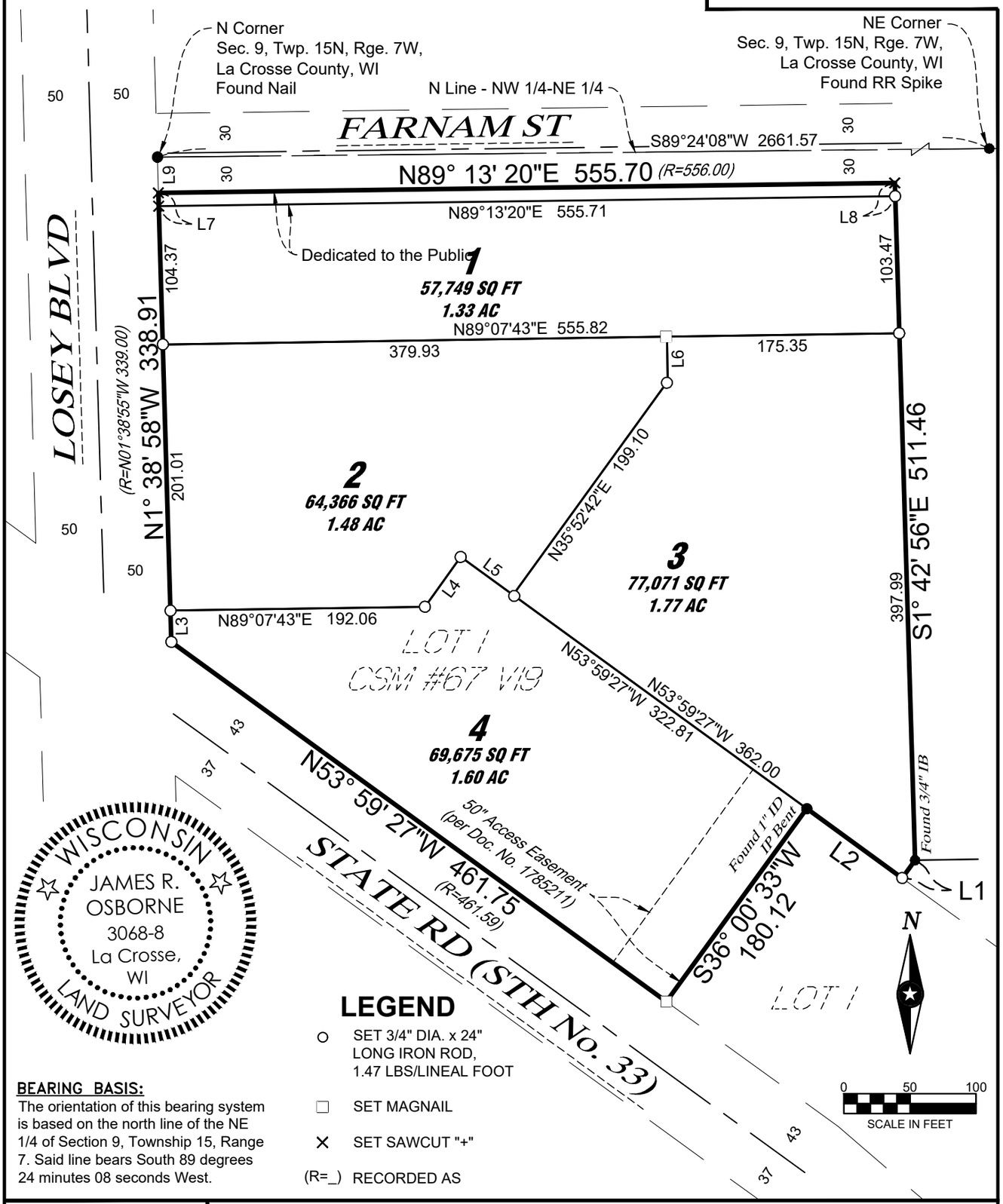
A maintenance agreement with the City will be required for the underground chambers. A maintenance plan for the permanent stormwater management facilities on site is included with the submittal.

Copper Rocks Parking Summary

		Area (sf) / # of Units	Provided Per Facility			Required Per Facility	Notes
			Garage Stalls	Surface Stalls	Total	Total	
LOT 1 (3) 11 unit Townhomes	Studio	6	39	39	78	6	1 per Bedroom
	1 BR	9				9	1 per Bedroom
	2 BR	12				24	1 per Bedroom
	3 BR	6				18	1 per Bedroom
				Total	78	57	
LOT 4 SOUTH BUILDING	Residential - Studio	11	40	67	107	11	1 per Bedroom
	Residential - 1 BR	32				32	1 per Bedroom
	Residential - 2 BR	16				24	1.5 per Unit (Variance Requested)
	Brewery	5610				38	1 per 150 SF
	Restaurant	2640				18	1 per 150 SF
	TBD	5520				37	1 per 150 SF (Assume retail use)
					Subtotal	160	
LOT 2 WEST BUILDING	Tenant Space (TBD)	4364	36	48	84	30	1 per 150 SF (Assume retail use)
	Residential - Studio	24				24	1 per Bedroom
	Residential - 1 BR	24				24	1 per Bedroom
	Residential - 2 BR	24				36	1.5 per Unit (Variance Requested)
	Rivertown Dental	2				6	3 per doctor (Assume 2 doctors)
					Subtotal	120	
LOT 3 EAST BUILDING	Residential - Studio	16	29	121	150	16	1 per Bedroom
	Residential - 1 BR	24				24	1 per Bedroom
	Residential - 2 BR	12				18	1.5 per Unit (Variance Requested)
	Coffee Shop	2018				14	1 per 150 SF
	Activity Center	9471				0	* For Resident Use Only, not included in count
					Subtotal	72	
	Farnam St.			24	24	0	
	Subtotal		105	260	365	352	
	Required accessible stalls				8	8	
				Total:	**365**	**352**	

CERTIFIED SURVEY MAP

LOT 1, CERTIFIED SURVEY MAP NUMBER 67, VOLUME 19, DOCUMENT NUMBER 1761262, LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9 , TOWNSHIP 15 NORTH, RANGE 7 WEST, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN.



WISCONSIN
JAMES R. OSBORNE
3068-8
La Crosse, WI
LAND SURVEYOR

LEGEND

- ○ SET 3/4" DIA. x 24" LONG IRON ROD, 1.47 LBS/LINEAL FOOT
- □ SET MAGNAIL
- × SET SAWCUT "+"
- (R=_) RECORDED AS

BEARING BASIS:
The orientation of this bearing system is based on the north line of the NE 1/4 of Section 9, Township 15, Range 7. Said line bears South 89 degrees 24 minutes 08 seconds West.

CERTIFIED SURVEY MAP

ISG

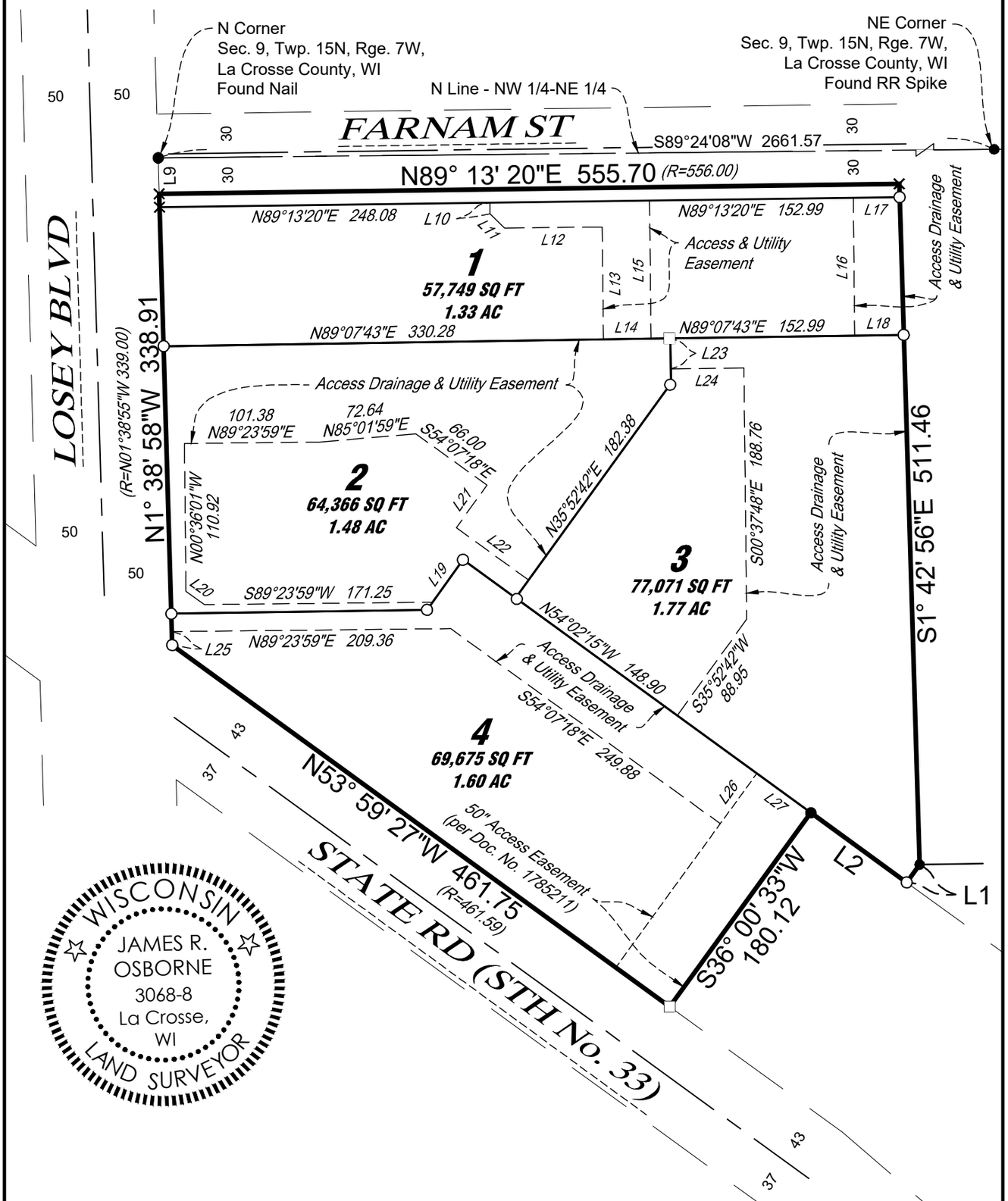
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PROJECT NO.:	21-25290
FILE NAME:	25290 CSM
DRAWN BY:	JRO
REVISED:	

SHEET 1 OF 3 SHEETS

CERTIFIED SURVEY MAP

LOT 1, CERTIFIED SURVEY MAP NUMBER 67, VOLUME 19, DOCUMENT NUMBER 1761262, LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9 , TOWNSHIP 15 NORTH, RANGE 7 WEST, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN.



WISCONSIN
JAMES R. OSBORNE
3068-8
La Crosse, WI
LAND SURVEYOR

ISG

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CERTIFIED SURVEY MAP

PROJECT NO.:	21-25290
FILE NAME:	25290 CSM
DRAWN BY:	JRO
REVISED:	

SHEET 2 OF 3 SHEETS

CERTIFIED SURVEY MAP

LOT 1, CERTIFIED SURVEY MAP NUMBER 67, VOLUME 19, DOCUMENT NUMBER 1761262, LOCATED IN THE NORTHWEST QUARTER OF THE NORTHEAST QUARTER OF SECTION 9 , TOWNSHIP 15 NORTH, RANGE 7 WEST, CITY OF LA CROSSE, LA CROSSE COUNTY, WISCONSIN.

LAND DESCRIPTION:

Lot 1 of Certified Survey Map Number 67, Volume 19, Document Number 1761262 located in the Northwest Quarter of the Northeast Quarter of Section 9, Township 15 North, Range 7 West, City of La Crosse, La Crosse County, Wisconsin.

CERTIFICATION:

I, James R. Osborne, Professional Land Surveyor, hereby certify that I have surveyed and mapped the lands described hereon, and that this map is a representation thereof, to the best of my knowledge and that I have complied with Chapter 236.34 of the Wisconsin State Statutes as per agreement with MKB Copper Rocks LLC who has requested such survey.

CITY OF LA CROSSE APPROVAL CERTIFICATE

Resolved that this Certified Survey Map is hereby approved by the City of La Crosse.

Dated this_____day of _____, 20__.

_____
City Clerk

OWNERS CERTIFICATE

As owner, I hereby certify that I caused the land described herein to be surveyed, divided, mapped and dedicated as represented on the Certified Survey Map. I also certify that this Certified Survey Map is required to be submitted to the following for approval, the City of La Crosse.

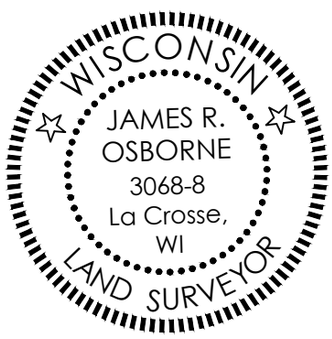
Dated this_____day of _____, 20__.

_____
Name Title

State of Wisconsin)
County of _____) SS
Personally came before me this _____ day of _____, 20__, the above named Owner to me known to be the same person who executed the foregoing instrument and acknowledged the same.

(Notary Seal)_____ Notary Public, _____ County, Wisconsin
My commission expires:_____

NOTE: Field work was completed on February 21, 2022.



LINE TABLE

LINE #	LENGTH	DIRECTION
L1	16.41	S36°00'33"W
L2	89.18	N53°59'27"W
L3	23.52	N1°38'58"W
L4	46.23	N35°36'26"E
L5	48.83	S53°59'27"E
L6	33.59	N0°52'17"W
L7	10.00	N1°38'58"W
L8	10.00	S1°42'56"E
L9	26.95	S1°38'58"E
L10	8.26	S0°36'01"E
L11	15.36	S45°36'01"E
L12	73.25	N89°23'59"E
L13	84.45	S0°36'01"E
L14	35.75	N89°07'43"E
L15	103.76	N0°36'01"W
L16	103.51	N0°36'01"W
L17	34.77	N89°13'20"E
L18	36.79	N89°07'43"E
L19	39.17	S35°36'26"W
L20	17.18	N54°07'18"W
L21	39.36	S35°52'42"W
L22	67.01	S54°07'18"E
L23	22.80	S0°52'17"E
L24	55.00	N89°23'59"E
L25	10.13	N1°38'58"W
L26	46.68	N36°00'33"E
L27	50.00	S53°59'27"E

ISG

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CERTIFIED SURVEY MAP

PROJECT NO.:	21-25290
FILE NAME:	25290 CSM
DRAWN BY:	JRO
REVISED:	

SHEET 3 OF 3 SHEETS

DENSITY COMPUTATIONS

PROPOSED UNITS	216
SITE AREA (AC)	6.30
DENSITY (UNITS/AC)	35

TOWNHOME PARKING DATA

TYPE	STALLS PROVIDED
TOWNHOME (OUTSIDE)	39
TOWNHOME (GARAGE)	39
TOTAL	78

MIXED-USE PARKING DATA

TYPE	STALLS PROVIDED
PROPOSED STALLS (OUTSIDE)	260
PROPOSED STALLS (UNDERGROUND)	105
ACCESSIBLE STALLS (INCLUDED IN OUTSIDE)	8
TOTAL	365

SITE AREA SUMMARY

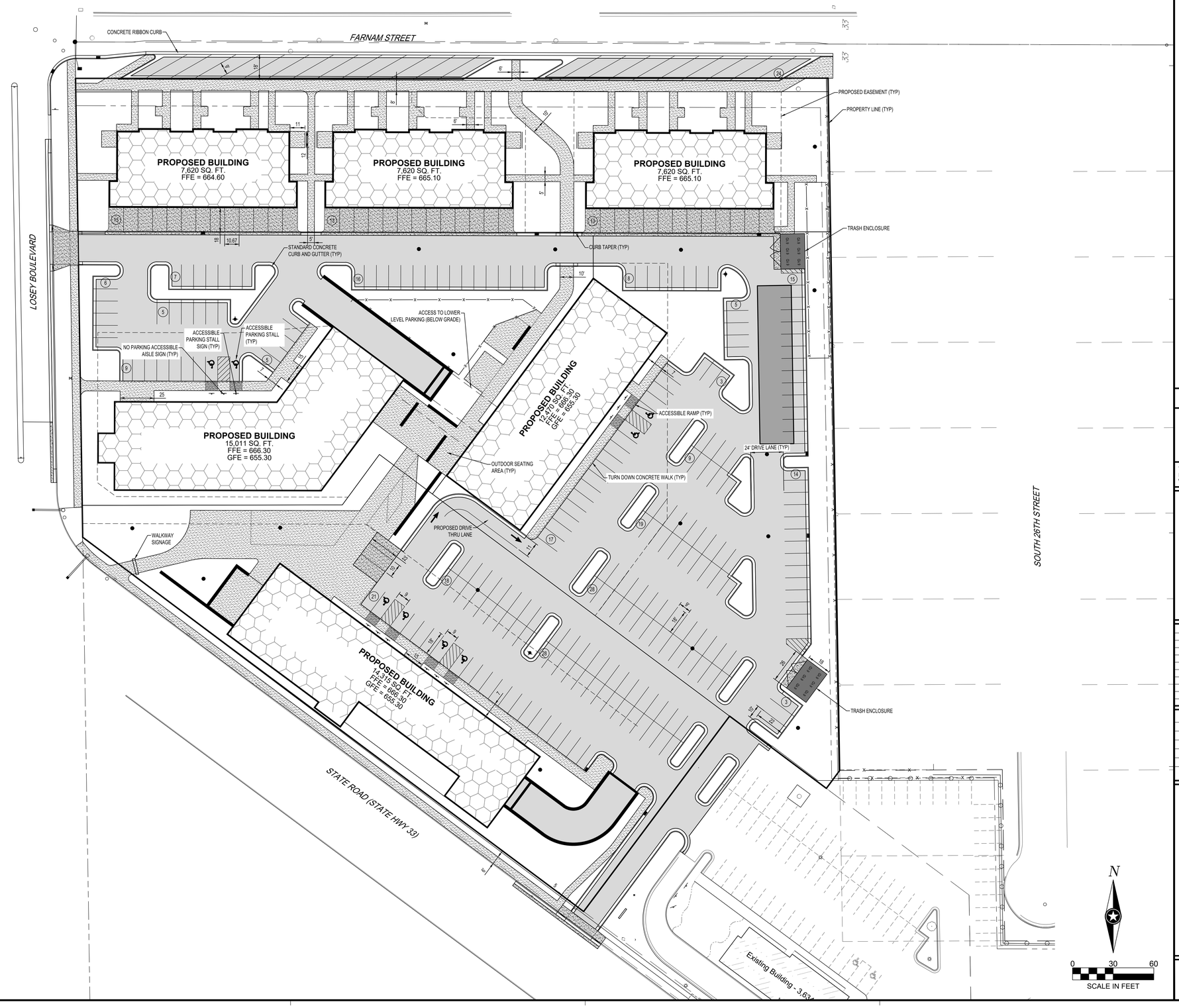
			UNITS		UNITS	PERCENT
PROPOSED BUILDINGS	66,306	SF	1.52	AC	25%
IMPERVIOUS AREA (PARKING/SIDEWALK)	135,782	SF	3.12	AC	51%
OPEN AREA	66,773	SF	1.53	AC	24%
PROPOSED AREA	268,861	SF	6.17	AC	100%
PROPOSED ROW	5,557	SF	0.13	AC	
TOTAL AREA	274,418	SF	6.30	AC	

BICYCLE PARKING DATA

TYPE	SPACES PROVIDED
PROPOSED SPACES (OUTSIDE)	18
TOWNHOME (GARAGE)	60
PROPOSED SPACES (GARAGE)	39
TOTAL	117

PAVEMENT LEGEND

SYMBOL	DESCRIPTION
	BITUMINOUS PAVEMENT
	CONCRETE PAVEMENT
	HEAVY DUTY CONCRETE PAVEMENT
	CONCRETE WALK



PRELIMINARY NOT FOR CONSTRUCTION

PDD GENERAL PLAN SUBMITTAL
03/04/2022

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C3-SITE
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

SITE PLAN

SHEET

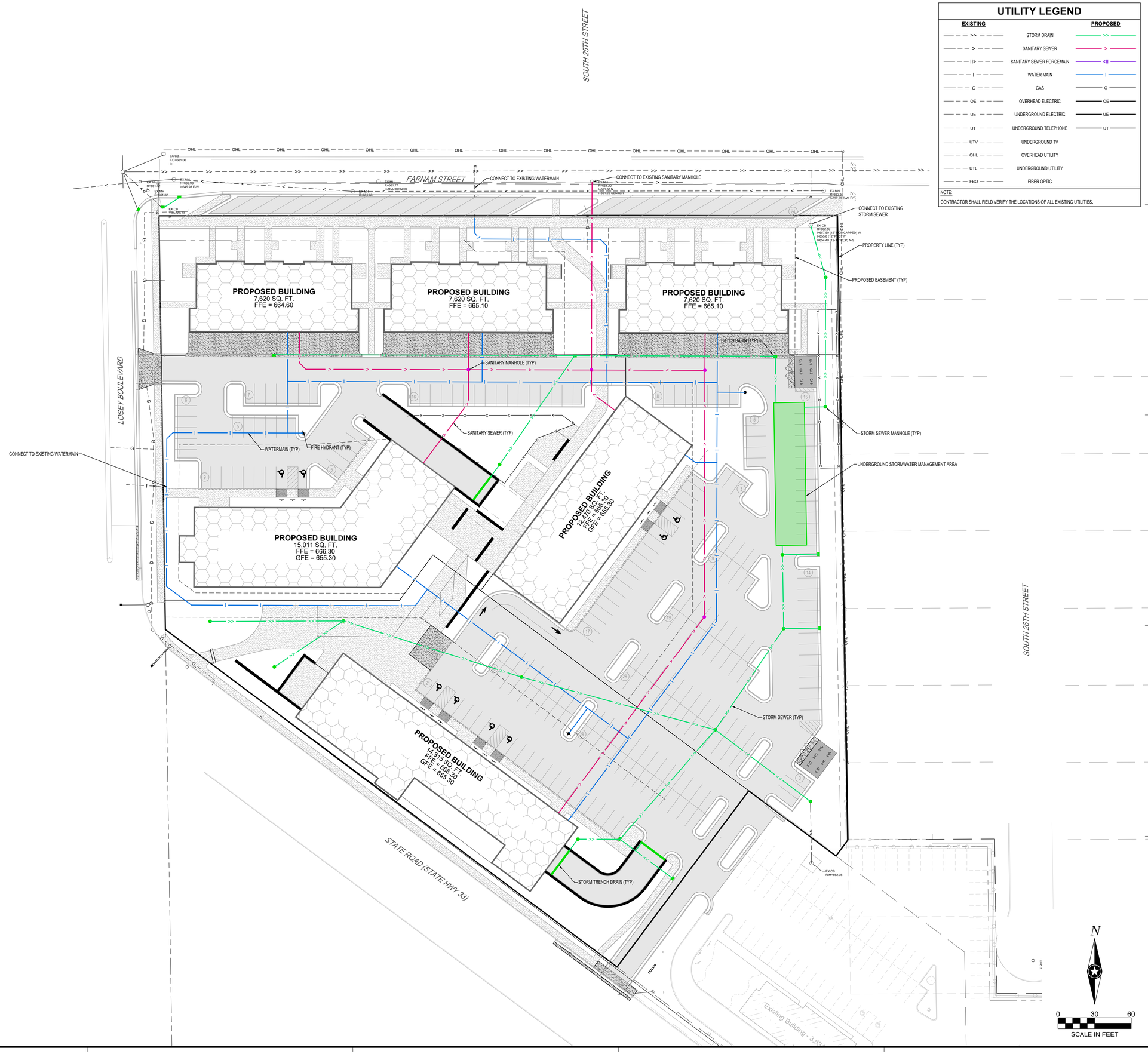
C3-10

PLOT DATE: 3/4/2022 2:34 PM

UTILITY LEGEND

EXISTING		PROPOSED
— — >> — —	STORM DRAIN	>>
— — > — —	SANITARY SEWER	>
— — II> — —	SANITARY SEWER FORCEMAIN	<II
— — I — —	WATER MAIN	I
— — G — —	GAS	G
— — OE — —	OVERHEAD ELECTRIC	OE
— — UE — —	UNDERGROUND ELECTRIC	UE
— — UT — —	UNDERGROUND TELEPHONE	UT
— — UTV — —	UNDERGROUND TV	
— — OHL — —	OVERHEAD UTILITY	
— — UTL — —	UNDERGROUND UTILITY	
— — FBO — —	FIBER OPTIC	

NOTE:
CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING UTILITIES.



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03/04/2022

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C3-SITE
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

SITE UTILITY PLAN

SHEET

C3-11

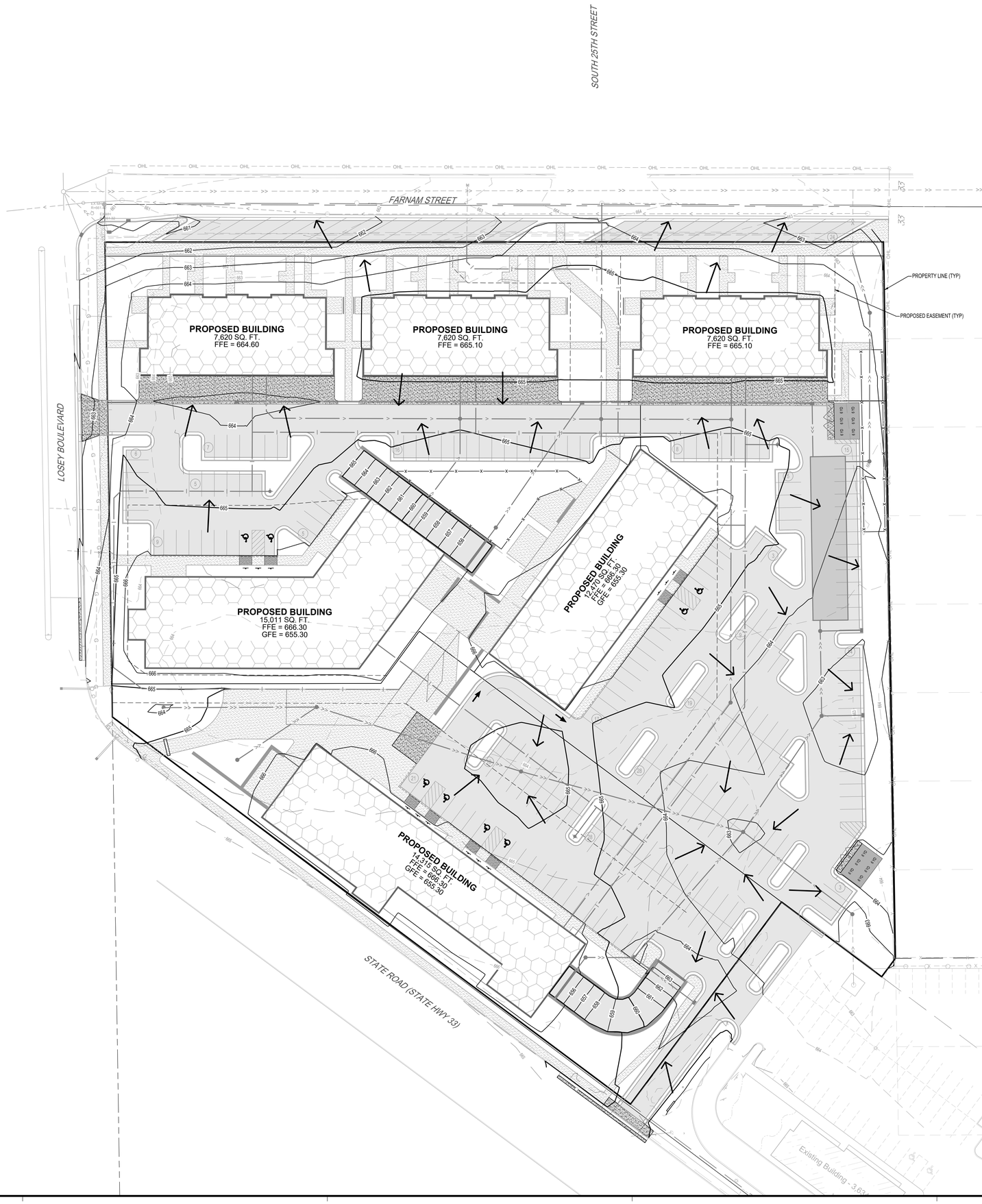
PLOT DATE: 3/4/2022 2:34 PM

GRADING LEGEND

101	EXISTING CONTOUR (MINOR INTERVAL)
100	EXISTING CONTOUR (MAJOR INTERVAL)
101	PROPOSED CONTOUR (MINOR INTERVAL)
100	PROPOSED CONTOUR (MAJOR INTERVAL)
XXX.XX	PROPOSED SPOT ELEVATION
XXX.XX	PROPOSED TOP BACK OF CURB SPOT ELEVATION
-X.X%	SURFACE GRADE / DIRECTION

GENERAL GRADING NOTES

PROPOSED CONTOURS SHOW FINISHED GRADE ELEVATIONS. BUILDING PAD AND PAVEMENT HOLD DOWNS ARE NOT INCLUDED. WHEN CONSTRUCTING BUILDING PADS WITH A HOLD DOWN, GRADE AREAS TO ENSURE POSITIVE BUILDING PAD DRAINAGE.



PRELIMINARY NOT FOR CONSTRUCTION

PDD GENERAL PLAN SUBMITTAL
03/04/2022

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PROJECT

COPPER ROCKS DEVELOPMENT

LA CROSSE WISCONSIN

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	21-25290
FILE NAME	25290 C4-GRADING
DRAWN BY	AAQ/SMW
DESIGNED BY	AAQ/SMW/KBR
REVIEWED BY	KBR
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

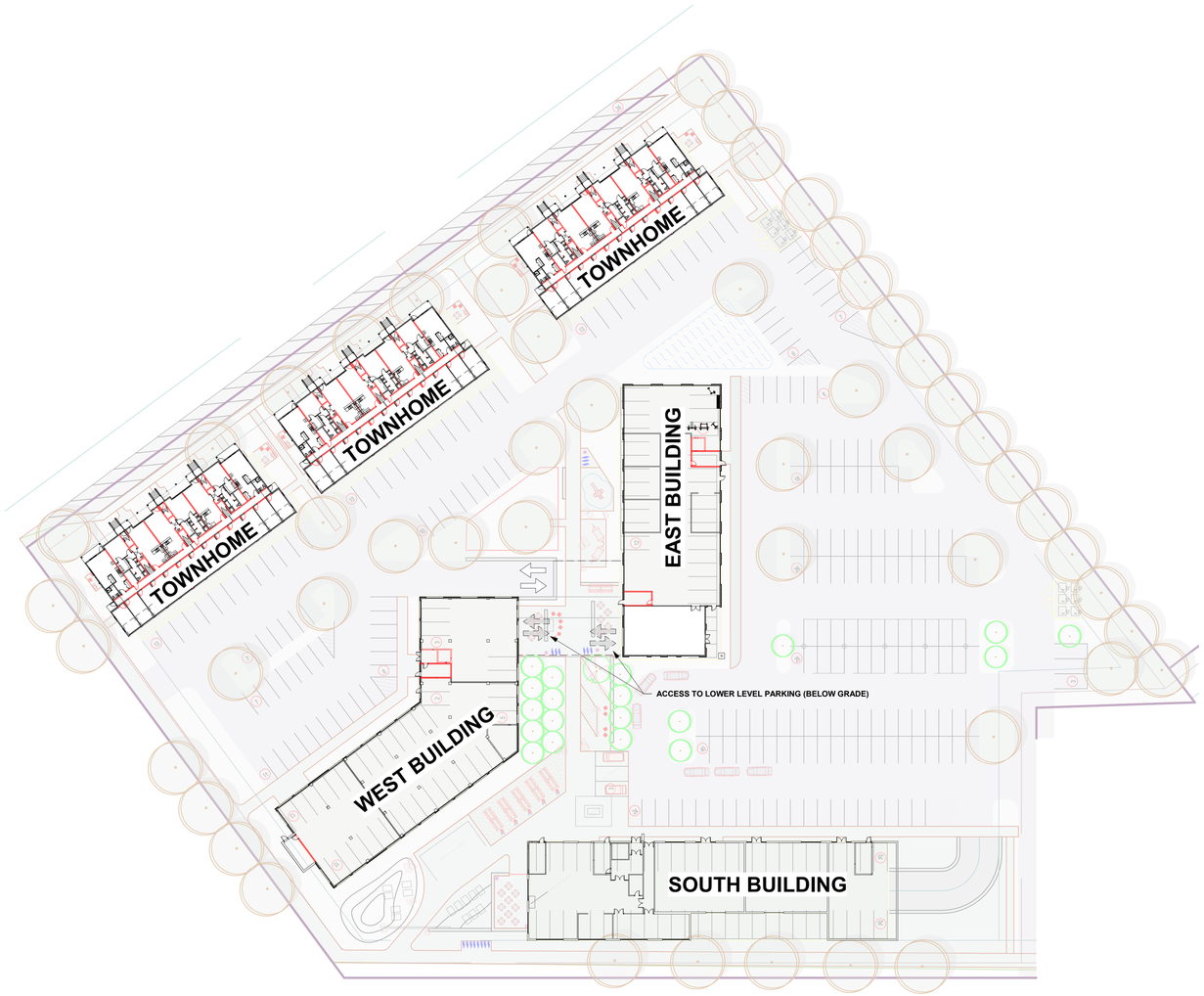
TITLE

GRADING PLAN

SHEET

C4-10

PLOT DATE: 3/4/2022 2:34 PM



1 ARCHITECTURAL SITE PLAN
1" = 40'-0"









AXON VIEWS

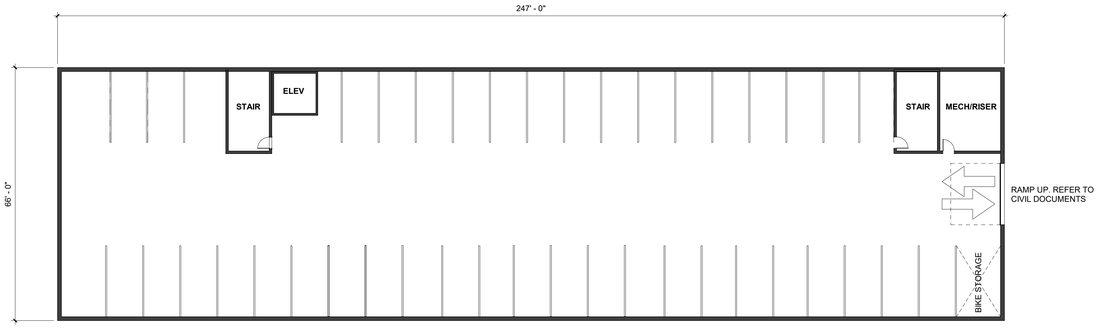
UNIT MATRIX

	STUDIO	1 BEDROOM	2 BEDROOM	TOTAL
5TH FLOOR	3	8	4	15
4TH FLOOR	3	8	4	15
3RD FLOOR	3	8	4	15
2ND FLOOR	2	8	4	14
GROUND/PARKING	-	-	-	-
TOTAL	11	32	16	59

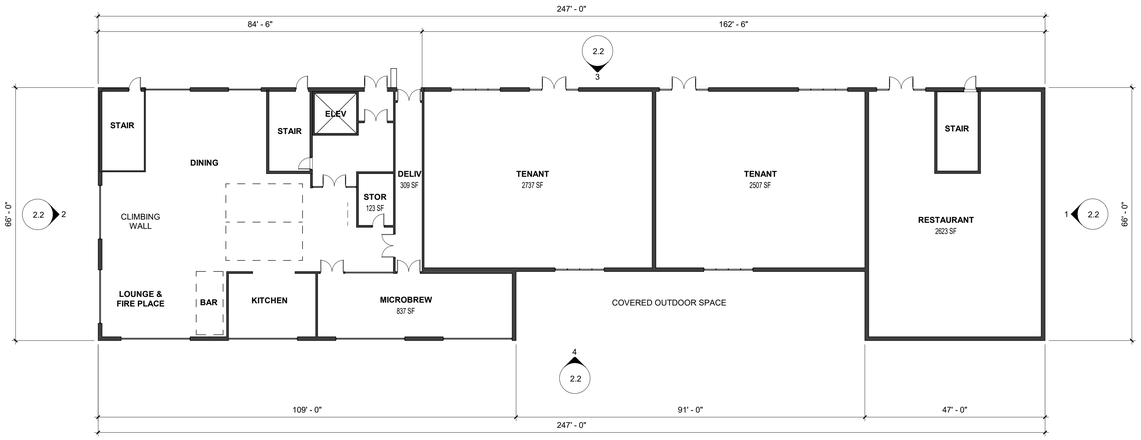
LOWER LEVEL PARKING: 40 STALLS



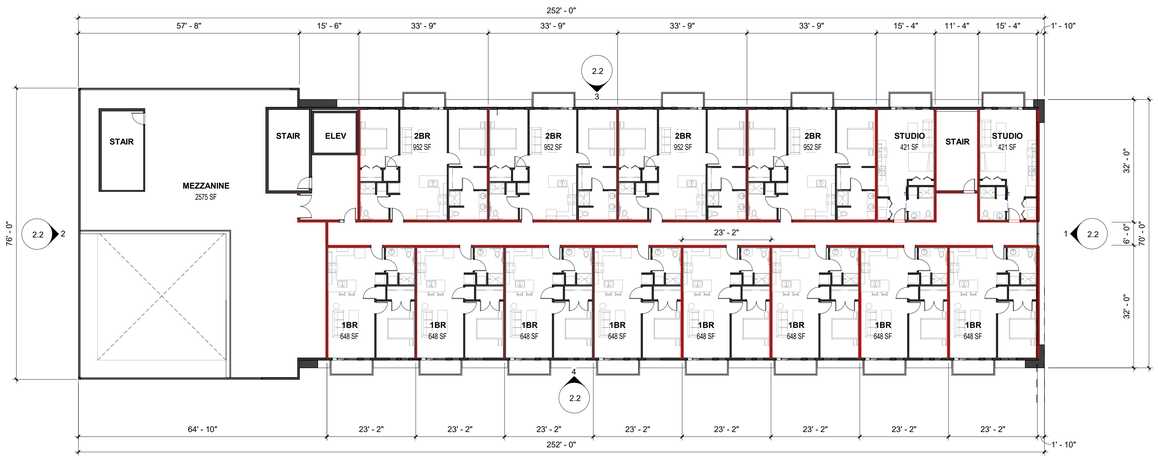




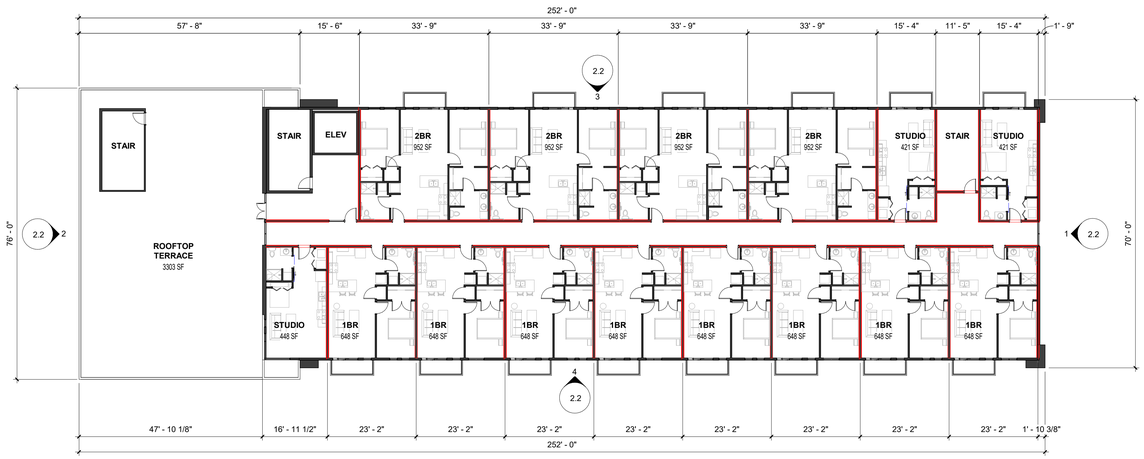
1 GARAGE LEVEL
1/16" = 1'-0"



2 FIRST FLOOR PLAN
1/16" = 1'-0"

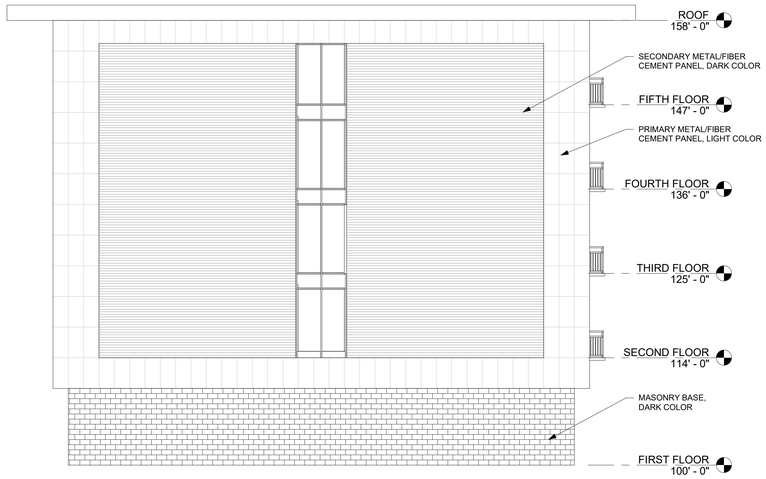


3 SECOND FLOOR PLAN
1/16" = 1'-0"

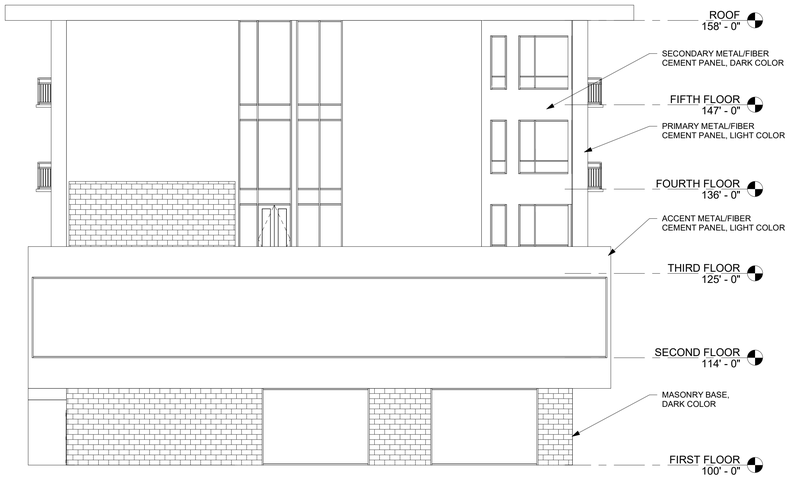


4 THIRD THRU FIFTH FLOOR PLAN
1/16" = 1'-0"

SOUTH BUILDING



1 SOUTH BUILDING - SOUTH ELEVATION
1/8" = 1'-0"



2 SOUTH BUILDING - NORTH ELEVATION
1/8" = 1'-0"



3 SOUTH BUILDING - EAST ELEVATION
1/8" = 1'-0"



4 SOUTH BUILDING - WEST ELEVATION
1/8" = 1'-0"

SOUTH BUILDING EXTERIOR ELEVATIONS

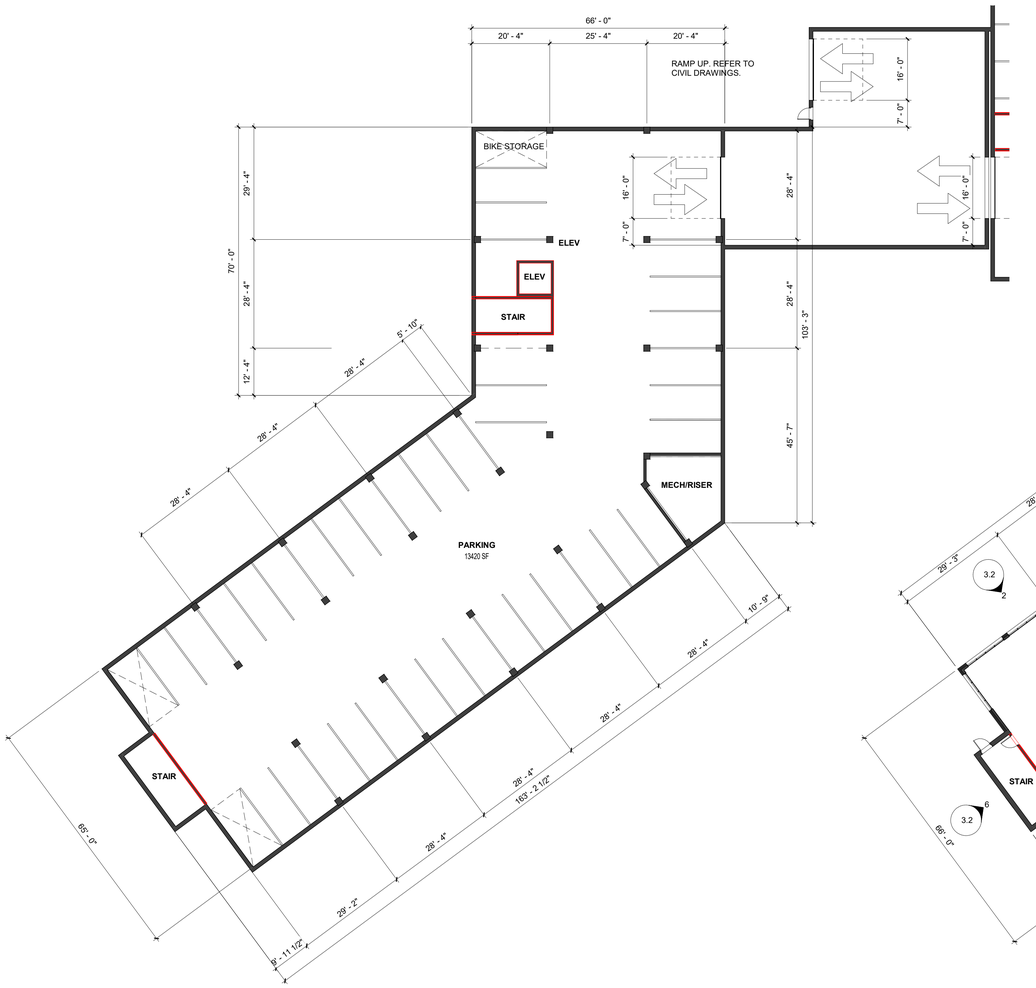
UNIT MATRIX

	STUDIO	1 BEDROOM	2 BEDROOM	TOTAL
5TH FLOOR	6	6	6	18
4TH FLOOR	6	6	6	18
3RD FLOOR	6	6	6	18
2ND FLOOR	6	6	6	18
GROUND/PARKING	-	-	-	-
TOTAL	24	24	24	72

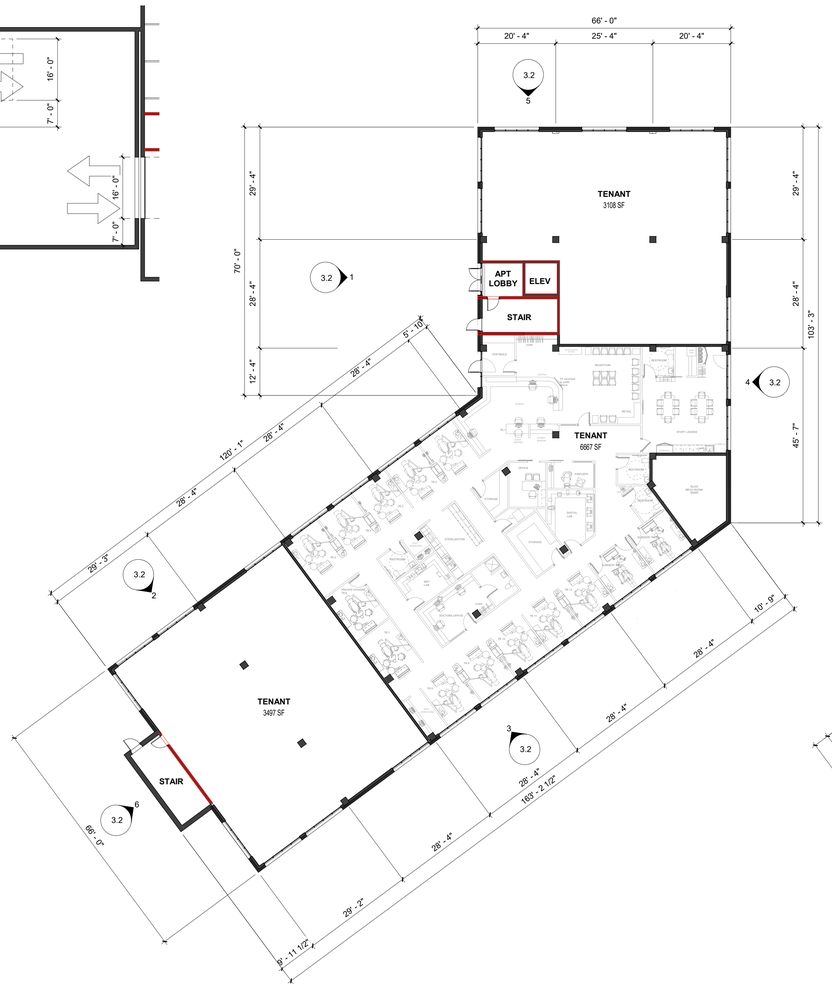
LOWER LEVEL PARKING: 36



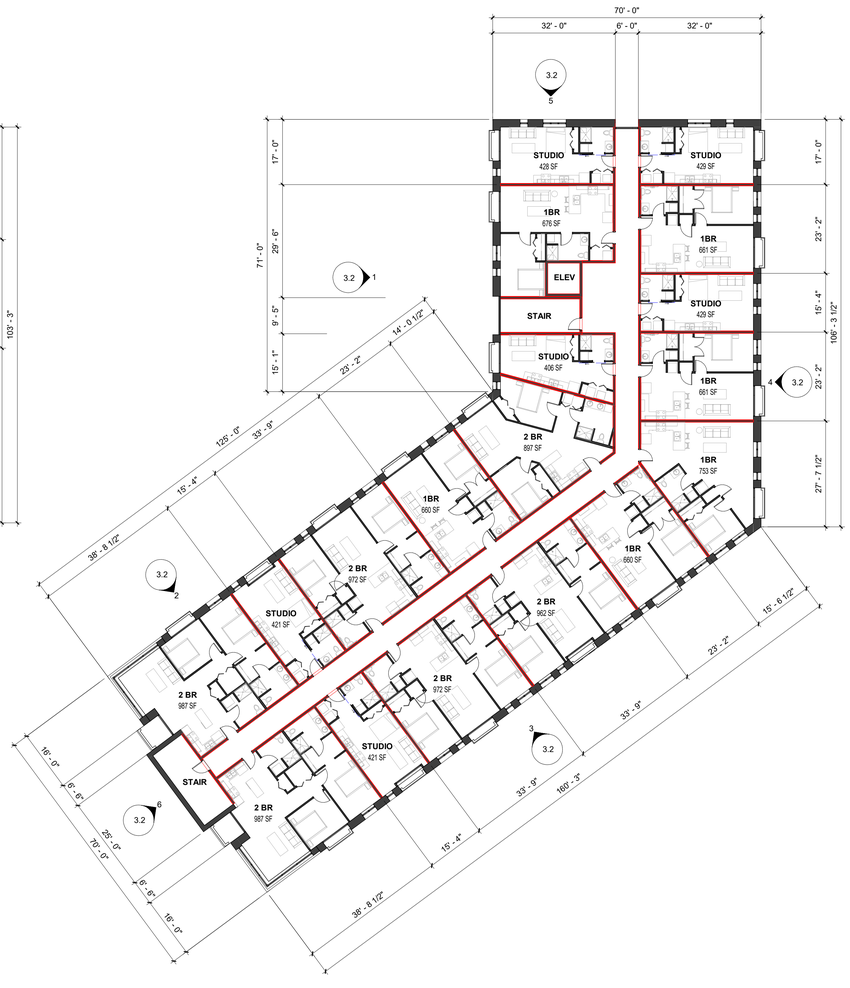




3 GARAGE LEVEL
1/16" = 1'-0"



1 FIRST FLOOR PLAN
1/16" = 1'-0"



2 SECOND THRU FIFTH FLOOR PLAN
1/16" = 1'-0"

WEST BUILDING



1 WEST BUILDING - WEST ELEVATION A
1/8" = 1'-0"



2 WEST BUILDING - WEST ELEVATION B
1/8" = 1'-0"



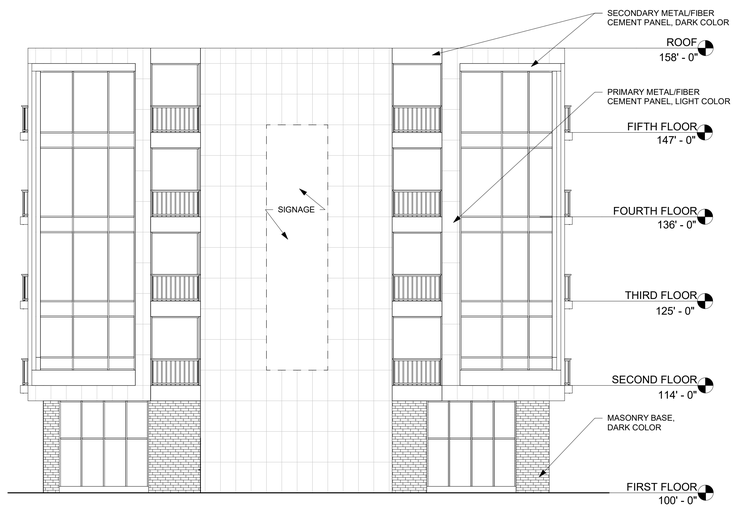
3 WEST BUILDING - EAST ELEVATION A
1/8" = 1'-0"



4 WEST BUILDING - EAST ELEVATION B
1/8" = 1'-0"



5 WEST BUILDING - NORTH ELEVATION
1/8" = 1'-0"



6 WEST BUILDING - SOUTH ELEV
1/8" = 1'-0"

WEST BUILDING EXTERIOR ELEVATIONS

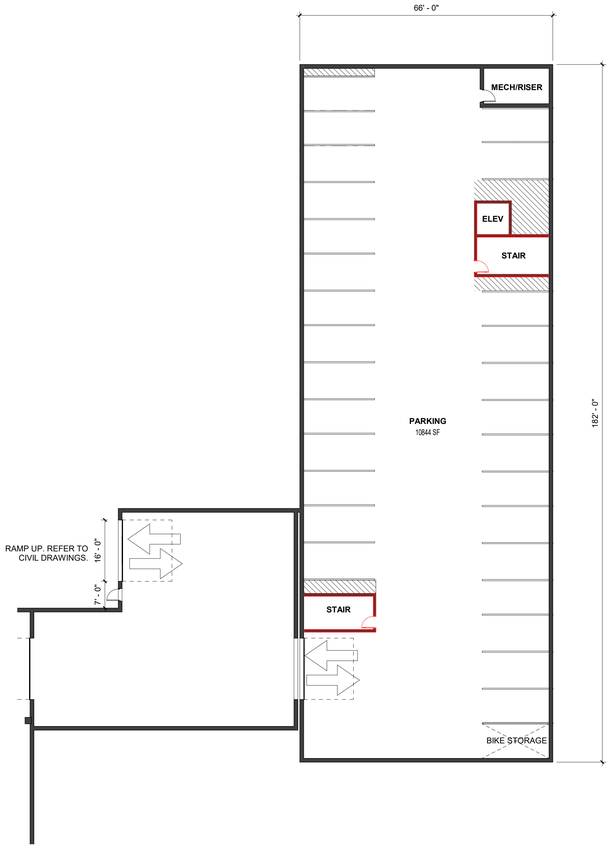
UNIT MATRIX

	STUDIO	1 BEDROOM	2 BEDROOM	TOTAL
5TH FLOOR	4	6	3	13
4TH FLOOR	4	6	3	13
3RD FLOOR	4	6	3	13
2ND FLOOR	4	6	3	13
GROUND/PARKING	-	-	-	-
TOTAL	16	24	12	52

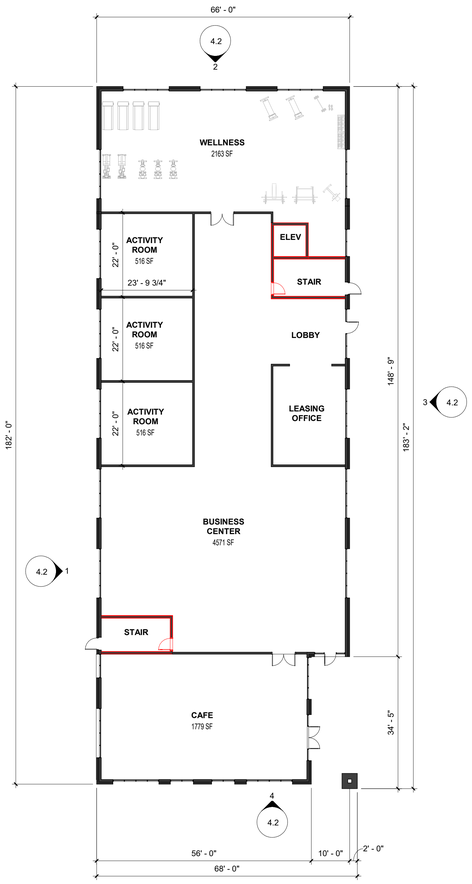
LOWER LEVEL PARKING: 30 STALLS



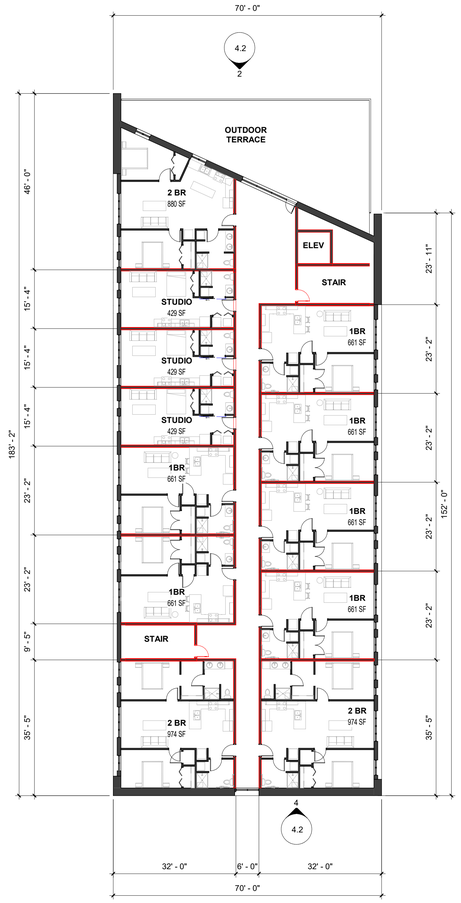




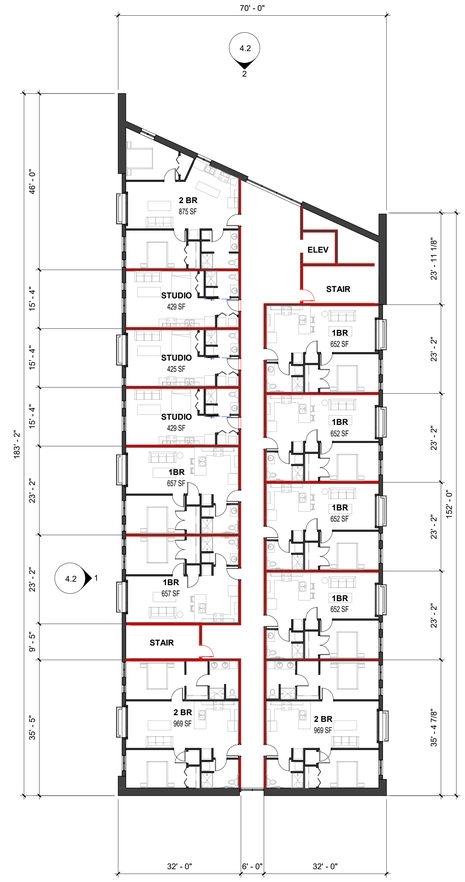
2 GARAGE LEVEL
1/16" = 1'-0"



1 FIRST FLOOR PLAN
1/16" = 1'-0"



3 SECOND FLOOR
1/16" = 1'-0"

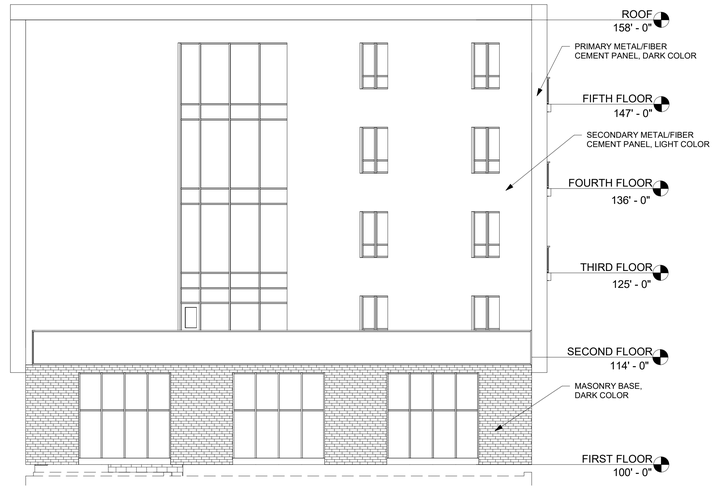


5 THIRD THRU FIFTH FLOOR PLAN
1/16" = 1'-0"

EAST BUILDING



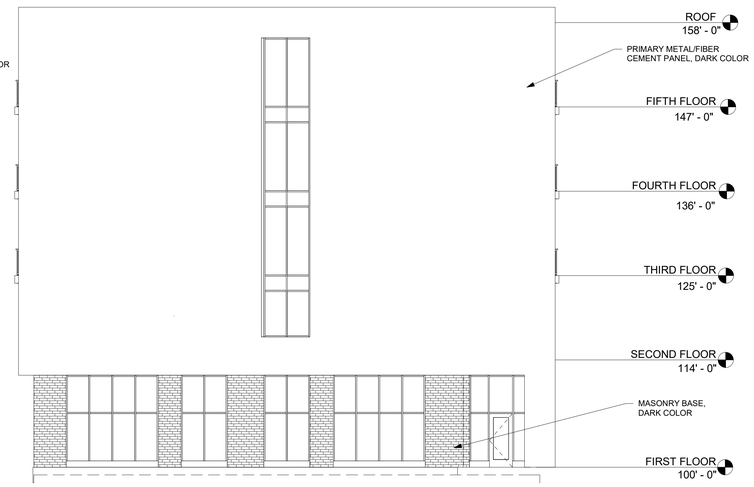
1 EAST BUILDIING - WEST ELEVATION
1/8" = 1'-0"



2 EAST BUILDING - NORTH ELEVATION
1/8" = 1'-0"

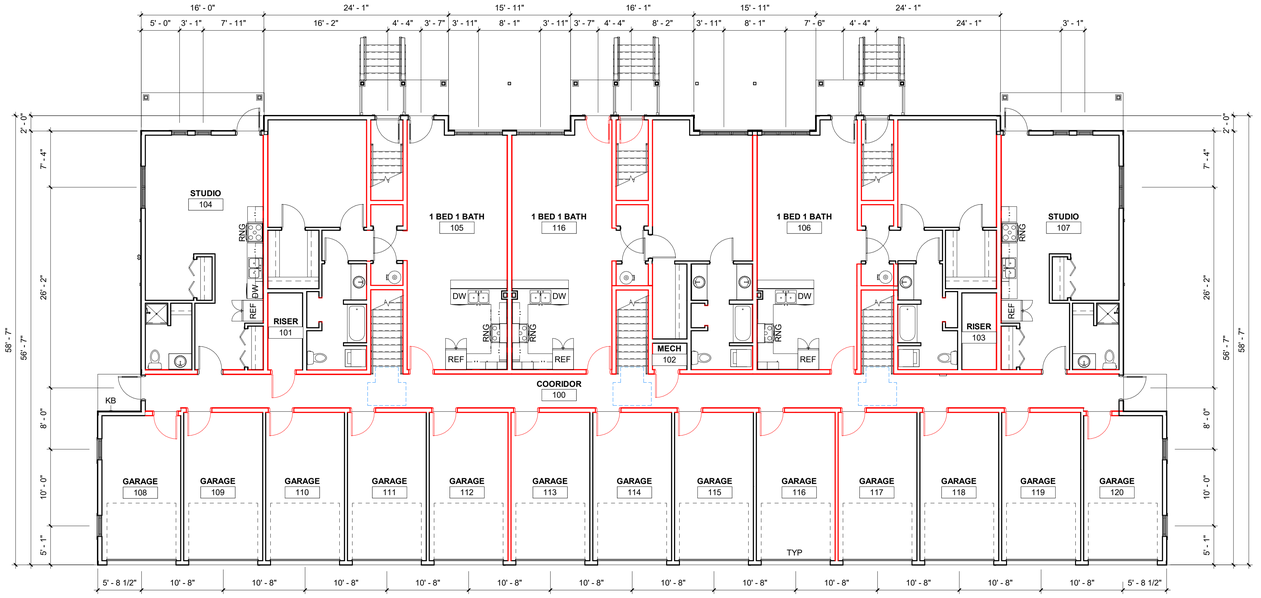


3 EAST BUILDING - EAST ELEVATION
1/8" = 1'-0"

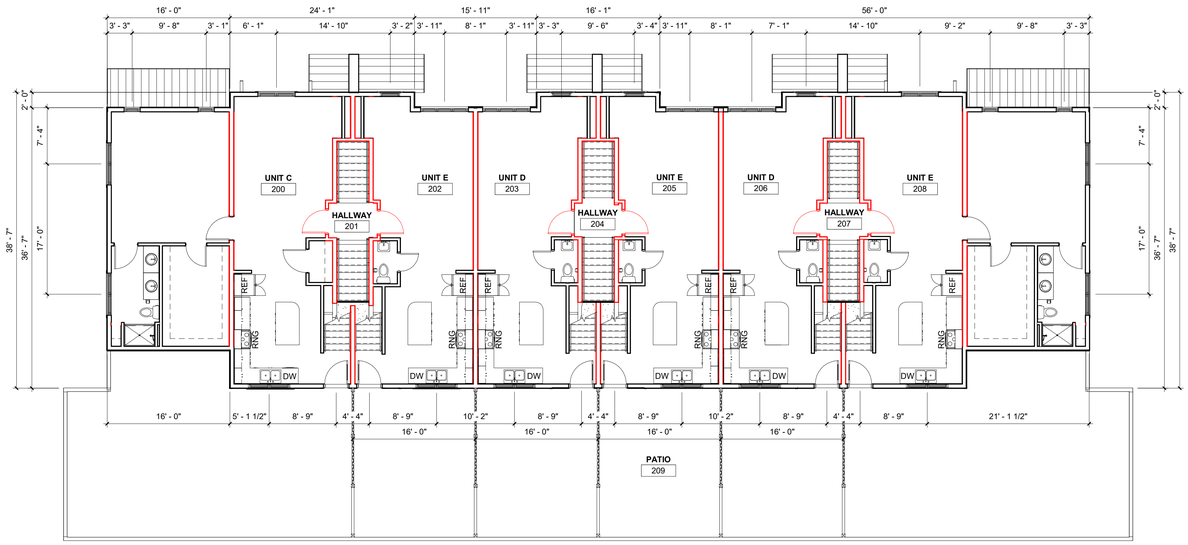


4 EAST BUILDING - SOUTH ELEVATION
1/8" = 1'-0"

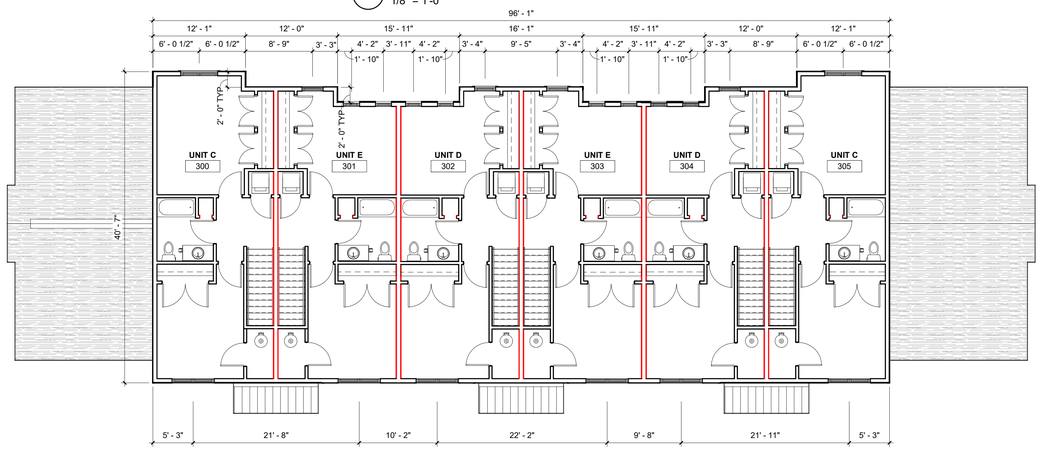
EAST BUILDING EXTERIOR ELEVATIONS



1 FIRST FLOOR PLAN
1/8" = 1'-0"



2 SECOND FLOOR PLAN
1/8" = 1'-0"

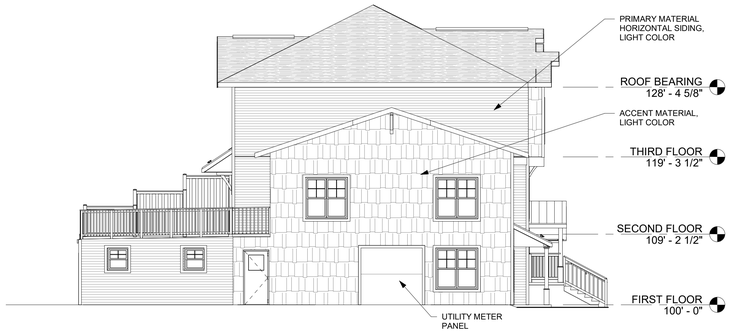


3 THIRD FLOOR PLAN
1/8" = 1'-0"

TOWNHOME



1 EAST ELEVATION
1/8" = 1'-0"



3 SOUTH ELEVATION
1/8" = 1'-0"



2 WEST ELEVATION
1/8" = 1'-0"



4 NORTH ELEVATION
1/8" = 1'-0"

TOWNHOME EXTERIOR ELEVATIONS



Trees	Genus		Count	Size
American Linden	Tilia americana		2	2" Cal.
American Musclewood	Carpinus caroliniana		15	#15 multistem
American Sycamore	Platanus occidentalis		3	2" Cal.
Bur Oak	Quercus macrocarpa		5	2" Cal.
Contender Peach	Prunus persica 'Contender'		1	5' Bare root
Eastern Redbud	Cercis canadensis		18	2" Cal.
Honey Locust	Gleditsia triacanthos		9	2" Cal.
Ironwood	Ostrya virginiana		8	2" Cal.
Kentucky Coffee Tree	Gymnocladus dioicus		4	2" Cal.
Pagoda Dogwood	Cornus alternifolia		4	#15 multistem
Reliance Peach	Prunus persica 'Reliance'		1	5' Bare root
River Birch	Betula Nigra		5	3" Caliper
Royal Raindrop Crabapple	Malus x JFS-KWT		9	#15 Cal.
Serviceberry Tree	Amelanchier grandiflora 'Autumn Brilliance'		16	#15 singlestem
Seven Son Flower	Heptacodium miconioides		10	7' multistem
Showy Mountain Ash	Sorbus decora		5	2" Cal.
Superior Plum	Prunus 'Superior'		1	5' Bare root
Swamp/Bur Oak	Quercus x schuettei		3	2" Cal.
Tart Northstar Cherry	Prunus cerasus 'North Star'		2	5' Bare root
Toka Plum	Prunus 'Toka'		1	5' Bare root
Turkish Filbert	Corylus colurna		3	2" cal.
Urban Pinnacle Oak	Quercus macrocarpa' JFS-KWT		3	2" Cal.
		TOTAL	125	
Shrubs				
Arctic Fire Dogwood	Cornus stolonifera		38	#5 Cont.
Aronia Lowscape Mound	Aronia melanocarpa 'UCONNAM165' PPAF, CPBRAF		26	#5 Cont.
Blizzard Mock Orange	Philadelphus coronarius		34	#5 Cont.
Blue Muffin' Viburnum	Viburnum dentatum 'Blue Muffin'		69	#5 Cont.
Chokeberry Aronia	Aronia Melanocarpa		31	#5 Cont.
Cranberry Cotoneaster	Cotoneaster apiculatus		68	#5 Cont.
Dwarf Bush Honeysuckle	Diervilla lonicera		67	#5 Cont.
Elderberry	Sambucus Canadensis		4	#5 Cont.
Fibre optics Buttonbush	Cephalanthus occidentalis 'Fibre-optics'		35	#5 Cont.
Gro-Low Sumac	Rhus aromatica Gro-Low		19	#5 Cont.
Holmstrup Arborvitae	Thuja occidentalis 'Holmstrup'		21	#5 Cont.
Jefferson Hazelnut	Corylus aveliana		2	#5 Cont.
Judd Viburnum	Viburnum x juddii		12	#5 Cont.
New Jersey Tea	Ceanothus americanus		15	#5 Cont.
Ninebark 'Little Devil'	Physocarpus opulifolius 'Little Devil'		20	#5 Cont.
Red Currant	Ribes rubrum		4	#5 Cont.
Rugosa Rose	Rosa rugosa		48	#5 Cont.
Serviceberry	Amerianchier Alnifolia		40	#5 Cont.
Skyrocket Juniper	Juniperus scopulorum 'Skyrocket'		3	#5 Cont.
Snowberry	Symphoricarpos albus		34	#5 Cont.
Sneezeweed	Helenium autumnale		10	#5 Cont.
Steeplebush	Spirea Tomentosa		6	#5 Cont.
Sugar Shack Buttonbush	Cephalanthus occidentalis 'Sugar Shack'		10	#5 Cont.
Summer Wine Ninebark	Physocarpus opulifolius 'Summer Wine'		5	#5 Cont.
Trautman Juniper	Juniperus chinensis		9	#5 Cont.
White Meadowsweet	Spirea Alba		6	#5 Cont.
		TOTAL	714	
Forbs				
Blazing Star	Liatris spicata			1 #1 Cont.
Blue False Indigo	Baptisia australis			1 #1 Cont.
Blue Stemmed Goldenrod	Solidago Caesia			1 #1 Cont.
Butterfly Milkweed	Asclepias Tuberosa			10 #1 Cont.
Fall-Bearing Raspberry				21 #1 Cont.
Great Blue Lobelia	Lobelia siphilitica			1 #1 Cont.
Jacob's Ladder	Polemonium caeruleum			40 #1 Cont.
Joe Pyeweed	Eutrochium purpureum			1 #1 Cont.
New England Aster	Symphyotrichum novae-angliae			1 #1 Cont.
Purple Coneflower	Echinacea Purpurea			1 #1 Cont.
Rose Milkweed	Asclepias incarnata			10 #1 Cont.
Showy Goldenrod	Solidago speciosa			1 #1 Cont.
Sneezeweed	Helenium autumnale			1 #1 Cont.
Wild Geranium	Geranium maculatum			34 #1 Cont.
Wild Nodding Onion	Allium Cernuum			25 #1 Cont.
Bradbury's Monarda	Monarda Bradburiana			14 #1 Cont.
Lanceleaf Coreopsis	Coreopsis lanceolata			10 #1 Cont.
Ohio Spiderwort	Tradescantia ohiensis			1 #1 Cont.
Wild Quinine	Parthenium integrifolium			1 #1 Cont.
Hairy Beardtongue	Penstemon hirsutus			1 #1 Cont.
Aromatic aster	Aster oblongifolius			1 #1 Cont.
Yellow Wild Indigo	Baptisia tinctoria			1 #1 Cont.
Cream Wild Indigo	Baptisia bracteata			1 #1 Cont.
Anise Hyssop	Agastache foeniculum			1 #1 Cont.
Orange Coneflower	Rudbeckia fulgida			1 #1 Cont.
Downy Wood Mint	Blephilia ciliata			1 #1 Cont.
Ironweed	Vernonia fasciculata			1 #1 Cont.
Golden Alexander	Zizia aurea			17 #1 Cont.
Wine Caps	Claytonia virginica			25 #1 Cont.
Wild Bluestem	Andropogon gerardii			25 #1 Cont.
Wild Mint	Mentha arvensis			23 #1 Cont.
Royal Catchfly	Silene regia			1 #1 Cont.
Cardinal Flower	Lobelia cardinalis			1 #1 Cont.
		TOTAL	359	
Grasses/Sedges				
Brown Fox Sedge	Carex Vulpinoidea			167 #1 Cont.
Prairie Dropseed	Sporobolus heterolepis			105 #1 Cont.
Switchgrass	Panicum virgatum 'Shenandoah'			53 #1 Cont.
Porcupine Sedge	Carex hystericina			25 #1 Cont.
Pennsylvania Sedge	Carex pensylvanica			141 #1 Cont.
Side Oats Grama	Bouteloua curtipendula			44 #1 Cont.
Little Bluestem	Schizachyrium scoparium			35 #1 Cont.
		TOTAL	549	

- Little Bluestem
- Side Oats Grama
- Prairie Dropseed
- Switchgrass
- Porcupine Sedge
- Pennsylvania Sedge
- Brown Fox Sedge

- Bradbury's Monarda
- Lanceleaf Coreopsis
- Spider Wort
- Wild Quinine
- Hairy Beardtongue
- Aromatic Aster
- Yellow Indigo
- Cream Wild Indigo
- Anise Hyssop
- Orange Coneflower
- Downy Wood Mint
- Ironweed
- Golden Alexander
- Wine Caps
- Great Blue Lobelia
- Jacob's Ladder
- Fall-bearing Raspberry
- Rose Milkweed
- Butterfly Milkweed
- Purple Coneflower
- Wild Nodding Onion
- Showy Goldenrod
- Blue Stemmed Goldenrod
- Sneezeweed
- Blazing Star
- Blue False Indigo
- New England Aster
- Wild Geranium
- Ironweed
- Joe Pyeweed
- Wild Strawberry
- Wild Mint
- Royal Catchfly
- Cardinal Flower

- Rugosa Rose
- Red Currant
- Snowberry
- Gro-Low Sumac
- Judd Viburnum
- Summer Wine Ninebark
- Jefferson Hazelnut
- Common Elderberry
- Skyrocket Juniper
- Trautman Juniper
- Holmstrup Arborvitare
- Cranberry cotoneaster
- Blizzard Mock Orange
- Aronia Lowscape Mound
- New Jersey Tea
- Meadowsweet
- Steeplebush
- Sugar Shack Button Bush
- Fibre Optics Button Bush
- Dwarf Bush Honeysuckle
- Shrubby St. John's Wort
- 'Blue Muffin' Viburnum
- Aronia Chokeberry
- 'Little Devil' Ninebark
- Arctic Fire Dogwood
- Serviceberry Shrub

Coulee Region Ecoscapes LLC

Copper Rocks Development

La Crosse, WI

Site Metrics

Dog Area: 4,050 sq ft
Garden Area: 37,837 sq ft
Lawn Area: 26,575 sq ft
Landscape Area: 68,462 sq ft
Boulevard: 780 linear ft

- Shredded Mulch
- Landscape Rock
- Lawn Area

03/02/2022

Proposed Landscape Plan

1:30

0 30' 60'

N

Trees	**Genus**	Count	Size
American Linden	Tilia americana	4	2" Cal.
American Musclewood	Carpinus caroliniana	15	#15 multistem
American Sycamore	Platanus occidentalis	3	2" Cal.
Bur Oak	Quercus macrocarpa	6	2" Cal.
Contender Peach	Prunus persica 'Contender'	1	5' Bare root
Eastern RedBud	Cercis canadensis	16	2" Cal.
Honey Locust	Gleditsia triacanthos	9	2" Cal.
Ironwood	Ostrya virginiana	6	2" Cal.
Kentucky Coffee Tree	Gymnocladus dioicus	4	2" Cal.
Pagoda Dogwood	Cornus alternifolia	4	#15 multistem
Reliance Peach	Prunus persica 'Reliance'	1	5' Bare root
River Birch	Batula Nigra	5	2" Caliper
Royal Raindrop Crabapple	Malus x 'JFS-KW5'	10	#15 Con
Serviceberry Tree	Amelanchier grandiflora 'Autumn Brilliance')	16	#15 singlestem
Seven Son Flower	Heptacodium miconioides	9	7' multistem
Showy Mountain Ash	Sorbus decora	5	2" Cal.
Superior Plum	Prunus 'Superior'	1	5' Bare root
Swamp/Bur Oak	Quercus × schuettei	3	2" Cal.
Tart Northstar Cherry	Prunus cerasus 'North Star'	2	5' Bare root
Toka Plum	Prunus 'Toka'	1	5' Bare root
Turkish Filbert	Corylus colurna	3	2" cal.
Urban Pinnacle Oak	Quercus macrocarpa 'JFS-KW3'	5	2" Cal.
	TOTAL	129	
Shrubs			
Arctic Fire Dogwood	Cornus stolonifera	38	#5 Cont.
Aronia Lowscape Mound	Aronia melanocarpa 'UCONNAM165' PPAF; CPBRAF	26	#5 Cont.
Blizzard Mock Orange	Philadelphus coronarius	34	#5 Cont.
Blue Muffin' Viburnum	Viburnum dentatum 'Blue Muffin'	69	#5 Cont.
Chokeberry Aronia	Aronia Melanocarpa	31	#5 Cont.
Cranberry Cotoneaster	Cotoneaster apiculatus.	68	#5 Cont.
Dwarf Bush Honeysuckle	Diervilla lonicera	67	#5 Cont.
Elderberry	Sambucus Canadensis	4	#5 Cont.
Fibre-optics Buttonbush	Cephalanthus occidentalis 'Fibre-optics'	35	#5 Cont.
Gro-Low Sumac	Rhus aromatica Gro-Low	19	#5 Cont.
Holmstrup Arborvitae	Thuja occidentalis 'Holmstrup'	21	#5 Cont.
Jefferson Hazelnut	Corylus avellana	2	#5 Cont.
Judd Viburnum	Viburnum x juddii.	12	#5 Cont.
New Jersey Tea	Ceanothus americanus	15	#5 Cont.
Ninebark 'Little Devil'	Physocarpus opulifolius 'Little Devil'	20	#5 Cont.
Red Currant	Ribes rubrum	4	#5 Cont.
Rugosa Rose	Rosa rugosa	48	#5 Cont.
Serviceberry	Amelanchier Alnifolia	40	#5 Cont.
Skyrocket Juniper	Juniperus scopulorum 'Skyrocket'	9	#5 Cont.
Snowberry	Symphoricarpos albus	33	#5 Cont.
St. John's Wort	Hypericum Perforatum	54	#5 Cont.
Steeplebush	Spirea Tomentosa	6	#5 Cont.
Sugar Shack Buttonbush	Cephalanthus occidentalis 'Sugar Shack'	39	#5 Cont.
Summer Wine Ninebark	Physocarpus opulifolius 'Summer Wine'	5	#5 Cont.
Trautman Juniper	Juniperus chinensis	9	#5 Cont.
White Meadowsweet	Spirea Alba	6	#5 Cont.
	TOTAL	714	
Forbs			
Blazing Star	Liatris spicata	5	#1 Cont.
Blue False Indigo	Baptisia australis	6	#1 Cont.
Blue Stemmed Goldenrod	Solidago Caesia	8	#1 Cont.
Butterfly Milkweed	Asclepias Tuberosa	10	#1 Cont.
Fall-Bearing Raspberry	-	21	#1 Cont.
Great Blue Lobelia	Lobelia siphilitica	5	#1 Cont.
Jacob's Ladder	Polemonium caeruleum	40	#1 Cont.
Joe Pyeweed	Eutrochium purpureum	5	#1 Cont.
New England Aster	Symphyotrichum novae-angliae	5	#1 Cont.
Purple Coneflower	Echinecea Purperea	9	#1 Cont.
Rose Milkweed	Asclepias incarnata	10	#1 Cont.
Showy Goldenrod	Solidago speciosa	5	#1 Cont.
Sneezeweed	Helenium autumnale	5	#1 Cont.
Wild Geranium	Geranium maculatum	34	#1 Cont.
Wild Nodding Onion	Allium Cernuum	25	#1 Cont.
Bradbury's Monarda	Monarda Braburiana	14	#1 Cont.
Lanceleaf Coreopsis	Coreopsis lanceolata	18	#1 Cont.
Ohio Spiderwort	Tradescantia ohiensis	5	#1 Cont.
Wild Quinine	Parthenium integrifolium	5	#1 Cont.
Hairy Beardtongue	Penstemon hirsutus	3	#1 Cont.
Aromatic aster	Aster oblongifolius	5	#1 Cont.
Yellow Wild Indigo	Baptisia tinctoria	3	#1 Cont.
Cream Wild Indigo	Baptisia bracteata	3	#1 Cont.
Anise Hyssop	Agastache foeniculum	5	#1 Cont.
Orange Coneflower	Rudbeckia fulgida	3	#1 Cont.
Downy Wood Mint	Blephilia ciliata	5	#1 Cont.
Ironweed	Vernonia baldwinii	5	#1 Cont.
Golden Alexander	Zizia aurea	17	#1 Cont.
(Wine Caps) Purple Poppy Mallow	Callirhoe involucrata	25	#1 Cont.
Wild Strawberry	Fragaria vesca	20	#1 Cont.
Wild Mint	Mentha arvensis	20	#1 Cont.
Royal Catchfly	Silene regia	5	#1 Cont.
Cardinal Flower	Lobelia cardinalis	5	#1 Cont.
	TOTAL	359	
Grasses/Sedges			
Brown Fox Sedge	Carex Vulpinoidea	167	#1 Cont.
Prairie Dropseed	Sporobolus heterolepis	108	#1 Cont.
Switchgrass	Panicum virgatum 'Shenandoah'	53	#1 Cont.
Porcupine Sedge	Carex hystericina	35	#1 Cont.
Pennsylvania Sedge	Carex pensylvanica	141	#1 Cont.
Side Oats Grama	Bouteloua curtipendula	44	#1 Cont.
Little Bluestem	Schizachyrium scoparium	35	#1 Cont.
	TOTAL	548	