#2023-142 Storage of America
439 E. Terra Cotta Avenue – Final Planned Unit Development for a Self-Storage
Project Review for Planning and Zoning Commission

Meeting Date: May 15, 2024

Request: Final Planned Unit Development for self-storage

Location: 439 E. Terra Cotta Avenue

Acreage: Approximately 22 acres

Existing Zoning: E Estate (vacant)

Proposed Zoning: M PUD Manufacturing Planned Unit Development

Surrounding Properties:
North: M Manufacturing
South: M PUD Manufacturing
East: M-L PUD Manufacturing Limited
West: B-2 PUD General Commercial, M and M PUD Manufacturing

Staff Contact: Elizabeth Maxwell (815.356.3615)

Background:

- In 2016, the property was annexed and brought in as Estate zoning.
- In 2023, Storage of America was granted the rezoning to M PUD, Comprehensive Land Use Map Amendment from Commerce to Industry, Preliminary PUD and Special Use Permit for self-storage, and a variation from the landscape requirement at the ends of buildings.
- This request is for the Final PUD.

Development Analysis:

General

- Request:
    - Final Planned Unit Development for the self-storage use. The Final PUD needs to be in substantial compliance with the Preliminary PUD.
    - Conditions of approval from the Preliminary PUD:
        - Revise fence to solid wooden of PVC fence style.

☒ *Completed* ☐ *Outstanding*

Provide full engineering for staff review for Final PUD.
☒ *Completed* ☐ *Outstanding*

Provide a detail of the kiosk for Final PUD.
☒ *Completed* ☐ *Outstanding*

Provide a final landscape plan with species, size and locations identified, as well as, a tree removal survey.
☒ *Completed* ☐ *Outstanding*

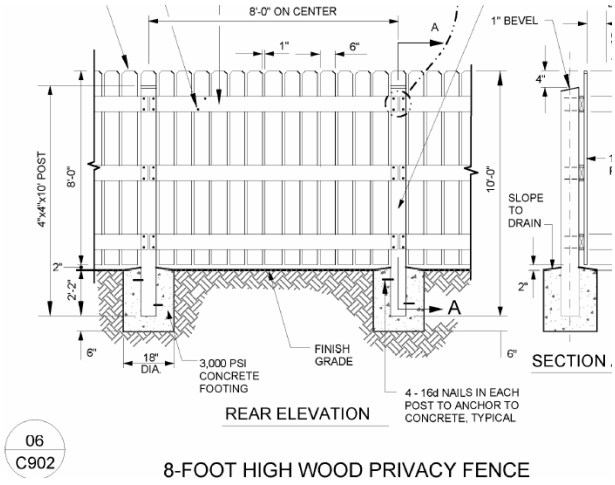
The tree removal plan would require 85.8 replacement inches, this is 34 trees. The site will contain 52 trees and 60 shrubs.

Provide a photometric plan for Final PUD.
☒ *Completed* ☐ *Outstanding*

Signage must comply with UDO Section 4-1000. Provide a sign package for Final PUD.
☐ *Completed* ☒ *Outstanding*

This condition has been copied over to this approval.

FENCE DETAIL



8-FOOT HIGH WOOD PRIVACY FENCE

KIOSK DETAIL



- Zoning: The site is zoned M PUD Manufacturing. This is an appropriate zoning for the self-storage use.
- Land Use: The land use map shows the area as Industry. This land use designation is appropriate for this use.
- Site Plan:
  - The site driveway is from Route 176.
  - The access drives around the site meet all the fire truck turning requirements.

- Landscape Plan:
  - The project will be planting the required street trees, the required landscape buffer along Route 176 and the required landscape buffer between manufacturing properties and commercial properties. The landscape plan is attached for review.

- Elevations:
  - The buildings are metal, unheated self-storage buildings.
  - Any building facades facing Route 176 will be clad with Affinity Stone Siding colored Glacier.
  - The buildings will be white with blue overhead doors.

- Engineering Plans:
  - Full engineering plans have been submitted and the petitioner has worked with the City's stormwater consultant to ensure their design meets our ordinance.

Findings of Fact:
Special Use Permit
Final Planned Unit Development
The petitioner is requesting approval of a Final Planned Unit Development for Self-Storage / Mini-Warehouses. A Planned Unit Development requires separate review because of their potential to impact surrounding properties and the orderly development of the City.

Section 2-400 B General Standards for all special uses in the Unified Ordinance establishes standards for all special uses in Crystal Lake. Briefly, the criteria are as follows:

1. The use is necessary or desirable, at the proposed location, to provide a service or facility which will further the public convenience and general welfare.
   ☐ *Meets* ☐ *Does not meet*

2. The use will not be detrimental to area property values.
   ☐ *Meets* ☐ *Does not meet*

3. The use will comply with the zoning districts regulations.
   ☐ *Meets* ☐ *Does not meet*

4. The use will not negatively impact traffic circulation.
   ☐ *Meets* ☐ *Does not meet*

5. The use will not negatively impact public utilities or municipal service delivery systems. If required, the use will contribute financially to the upgrading of public utilities and municipal service delivery systems.
   ☐ *Meets* ☐ *Does not meet*

6. The use will not negatively impact the environment or be unsightly.
   ☐ *Meets* ☐ *Does not meet*

7. The use, where possible will preserve existing mature vegetation, and provide landscaping and architecture, which is aesthetically pleasing, compatible or complementary to surrounding properties and acceptable by community standards.
   ☐ *Meets* ☐ *Does not meet*

8. The use will meet requirements of all regulating governmental agencies.
   ☐ *Meets* ☐ *Does not meet*

9. The use will conform to any conditions approved as part of the issued Special Use Permit.
   ☐ *Meets* ☐ *Does not meet*

10. The use will conform to the regulations established for specific special uses, where applicable.
    ☐ *Meets* ☐ *Does not meet*

Self-Storage, mini warehouses. Self-Storage and mini-warehouse uses must comply with the following standards:

1. General: No business activity other than the rental of storage units shall be conducted on the premises. The storage of hazardous, toxic or explosive substances, including, but not limited to hazardous waste, industrial solid waste, medical waste, municipal solid waste, septage or used oil is prohibited.

   ☐ *Meets* ☐ *Does not meet*

2. Site layout: Buildings shall be situated such that the doorways or access points are facing away from the yards abutting street right of way.

   ☐ *Meets* ☐ *Does not meet*

3. Screening: An eight-foot-tall solid screen consisting of a solid wooden fence in accordance with the provision of Section 4-700, Fences, walls and screening, or opaque landscape along the perimeters of the property in accordance with the provisions of Section 4-400 Landscape and screening standards, shall be provided.

   ☐ *Meets* ☐ *Does not meet*

4. Landscaping: Landscaping shall be provided within a minimum five-foot wide landscape beds along the foundations of the ends of the storage buildings in accordance with the provisions of Section 4-400 Landscaping and screening standards.

   ☐ *Meets* ☐ *Does not meet*

   The petitioner received a variation from this criterion as they have five-foot deep end storage units on the ends of the buildings so they cannot place landscape there.

5. Security: Security lighting shall be provided to safely illuminate all areas of the facility. The use of photocell units and motion sensors is encouraged as a means of saving energy. If overnight security personnel will be staying at the facility, provide details regarding the

location of the proposed residence. Appropriate utilities to service the unit shall be provided. No more than one overnight unit shall be provided per facility.

☐ *Meets* ☐ *Does not meet*

Comprehensive Land Use Plan 2030 Vision Summary Review:

The Comprehensive Plan designates the subject property as Industry, which allows for existing and future manufacturing and service uses. The following goal is applicable to this request:

Land Use – Industry

Goal: Supporting manufacturing uses within the community, which contribute to the regional and local economy and Crystal Lake's live, work, play philosophy.

Recommended Conditions:

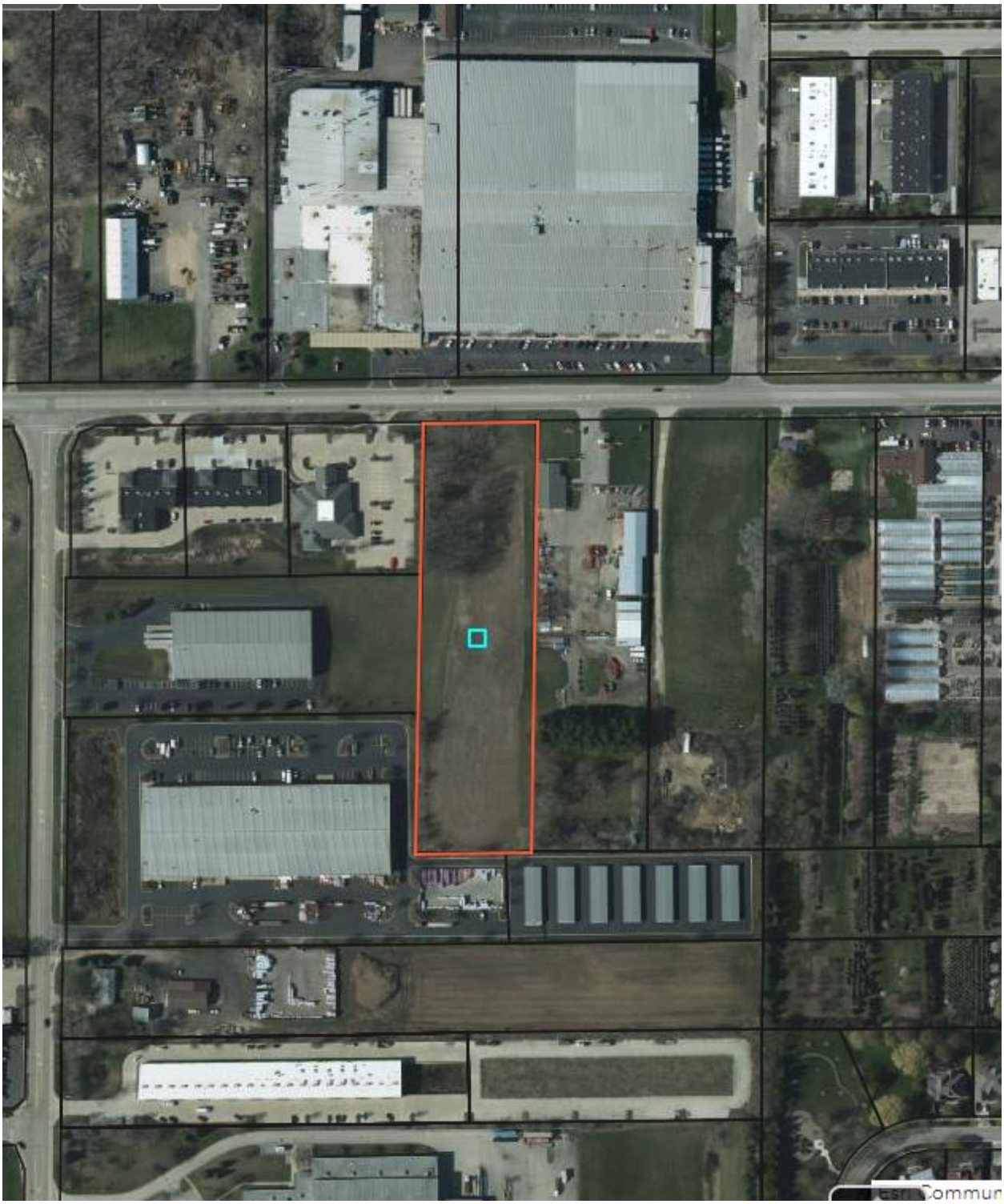
If a motion to recommend approval of the petitioner's request is made, it should be with the following conditions:

1. Approved plans, reflecting staff and advisory board recommendations, as approved by the City Council:
   A. Application (Fitzpatrick, received XX/XX/24)
   B. Final Plans (Gresham Smith, dated 03/28/24, received 04/24/24)
   C. Stormwater Calculations (Gresham Smith, dated 03/28/24, received 04/24/24)
   D. Kiosk (Henderson Associates Arch, dated SY Design, dated 10/24/23, received 04/26/24)

2. Signage must comply with UDO Section 4-1000.

3. The petitioner shall address all of the review comments and requirements of the City Departments of Public Works, Fire Rescue, Engineering, and Community Development and the City's Stormwater Consultant.

PIQ MAP
439 E. Terra Cotta Avenue



City of Crystal Lake
Development Application
Ownership Sign-off Acknowledgement Form

The following information is related to a development application. As the owner of the property in question, I (we) acknowledge that the information provided in the submittal was reviewed and approved.

Owner Information

Name: Storage of America LLC

Address: 4225 W. 62nd St.

Indianapolis IN 46268

Phone: (616)209-2162 Tom Fitzpatrick, (801)652-3134 Derek

E-mail: tfitzpatrick@storageofamerica.com, dwalker@storageofamerica.com

Project Name & Description: SOA Terra Cotta LLC, dba Storage of America

EIN is 99-2728856, Self Storage

Project Address/Location: 5413 E. Terra Cotta, Crystal Lake IL 60014

Signature

5/10/2024

Owner: Print and Sign name Date

NOTE: If the property is held in a trust, the trust officer must sign this petition as owner. In addition, the trust officer must provide a letter that names all beneficiaries of the trust.

SITE DEVELOPMENT PLANS FOR

STORAGE OF AMERICA

439 E TERRA COTTA AVENUE
MCHENRY COUNTY
CRYSTAL LAKE, ILLINOIS

GRESHAM SMITH PROJECT NO. 46724.01

OWNER / DEVELOPER

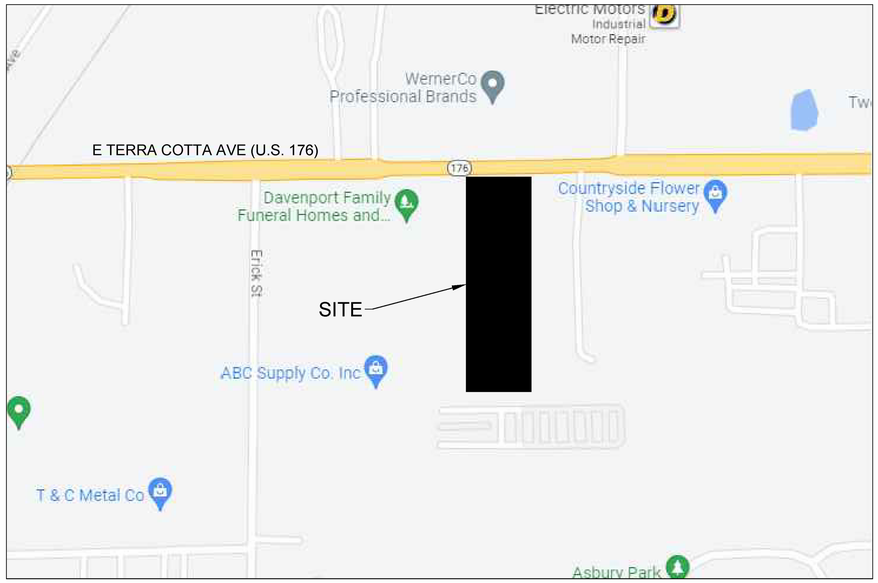
Storage of America
4225 W. 62nd St.
Indianapolis, IN 46268
Owner Contact: Thomas M. Fitzpatrick, P.E.
Phone: (616) 209-2162

CIVIL ENGINEER

Gresham Smith

222 Second Avenue South
Suite 1400
Nashville, TN 37201

Civil Contact: Nicholas Coates, E.I.
Phone: (615) 770-8361
Email: nicholas.coates@greshamsmith.com



VICINITY MAP
NOT TO SCALE

Sheet List Table	
Sheet Number	Sheet Title
C000	COVER SHEET
C001	GENERAL NOTES
C100	EXISTING CONDITIONS PLAN
C101	DEMOLITION PLAN
C200	SITE LAYOUT AND UTILITY PLAN
C300	GRADING AND DRAINAGE PLAN
C400	INITIAL EPSC PLAN
C401	INTERMEDIATE EPSC PLAN
C402	FINAL EPSC PLAN
C901	SITE DETAILS
C902	SITE DETAILS
C903	SITE DETAILS
C904	SITE DETAILS
L200	LANDSCAPE PLAN

Gresham Smith

GreshamSmith.com

222 Second Avenue South
Suite 1400
Nashville, TN 37201

615.770.8100

STORAGE OF AMERICA
439 E TERRA COTTA AVENUE
CRYSTAL LAKE, IL 60014

LICENSED PROFESSIONAL ENGINEER
MICHAEL DUANE HUNKLER
062-052189
OF ILLINOIS

04/01/2024

Revision

No.	Date	Description
1	03.28.2024	CITY COMMENTS

COVER SHEET

C000

46724.01
12.06.2023

This Line Is 3 Inches When Printed Full Size

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GENERAL NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INITIATE, MAINTAIN, AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THE WORK.
2. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES, OBTAIN ALL PERMITS, AND PAY ALL FEES REQUIRED FOR THE EXECUTION OF THE WORK.
3. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, INCLUDING IRRIGATION LINES, TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN, AND REPAIR CONTRACTOR CAUSED DAMAGE ACCORDING TO CURRENT LOCAL STANDARDS AND AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY. RELOCATE IRRIGATION LINES AS NECESSARY FOR CONSTRUCTION.
4. CONTRACTOR SHALL PROVIDE PROTECTION TO ALL PAVEMENT, FENCES, TREES, AND STRUCTURES THAT ARE TO REMAIN. CONTRACTOR-CAUSED DAMAGE SHALL BE REPAIRED TO MATCH EXISTING CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
5. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH A CONSTRUCTION SCHEDULE FOR VARIOUS SITEWORK ELEMENTS SO THAT PERIODIC SITE VISITS MAY BE COORDINATED TO ALLOW FOR TIMELY INSPECTION CERTIFICATION OF CONSTRUCTION AND REPORTS TO AGENCIES, AND TO AVOID DELAYS IN ISSUANCE OF CERTIFICATE OF OCCUPANCY.

DEMOLITION AND PROTECTION NOTES:

1. DEMOLITION AND REMOVAL OPERATIONS SHALL COMMENCE ONLY AFTER ALL INITIAL EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE AND FUNCTIONAL.
2. THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT A WASTE MANAGEMENT PLAN PRIOR TO THE COMMENCEMENT OF WORK. AT A MINIMUM THE PLAN SHALL INCLUDE:
   - 2.1. THE PROPER PROCEDURES FOR DISPOSAL OR RECLAIMING FOR REUSE / RECYCLING.
   - 2.2. DESIGNATED AREAS FOR WASTE MANAGEMENT CONTAINERS. CONTAINERS SHALL BE PROPERLY MARKED FOR ALLOWABLE AND PROHIBITED ITEMS AND MATERIALS.
   - 2.3. DESIGNATED CHEMICAL STORAGE AREAS, APPROPRIATE CHEMICAL STORAGE CONTAINERS, AND PROCEDURES FOR SPILL CONTROL. CHEMICALS SHALL NOT BE PERMITTED TO INFILTRATE TO GROUNDWATER OR BE PUMPED UNTREATED FROM PIT DEWATERING FACILITIES.
   - 2.4. A CONCRETE WASHOUT AREAS LOCATED AWAY FROM DESIGNATED CONSTRUCTION EXIT.
3. PROVIDE NEAT AND STRAIGHT SAWCUTS OF EXISTING PAVEMENT ALONG ALL LIMITS OF PAVEMENT DEMOLITION.
4. ALL DEMOLISHED MATERIALS BECOME THE PROPERTY OF THE CONTRACTOR UNLESS OTHERWISE DESIGNATED. DISPOSE OF OFF THE OWNER'S PROPERTY IN A LEGAL MANNER. PROLONGED STORAGE OR THE SALE OF DEMOLISHED ITEMS OR MATERIALS ON-SITE IS NOT PERMITTED WITHOUT PRIOR NOTIFICATION AND CONSENT OF OWNER.
5. ALL PAVEMENT, BASE COURSE, SIDEWALKS, CURBS, BUILDINGS, FOUNDATIONS, ETC., IN THE AREA TO BE REMOVED SHALL BE REMOVED FULL DEPTH. EXISTING BASE COURSE MATERIALS MAY BE WORKED INTO THE NEW PAVEMENT OR BUILDING SUBGRADE PROVIDED THAT THE GRADATION, CONSISTENCY, COMPACTION, SUBGRADE CONDITION, ETC., ARE IN ACCORDANCE WITH THE SPECIFICATIONS. BASE COURSE MATERIALS SHALL NOT BE WORKED INTO THE SUBGRADE OF AREAS TO RECEIVE PLANTING.
6. THE CONTRACTOR SHALL USE WATER SPRINKLING AND OTHER SUITABLE METHODS AS NECESSARY TO CONTROL DUST AND DIRT CAUSED BY THE DEMOLITION WORK.
7. ALL EXISTING FEATURES REMAINING AND NOT SPECIFICALLY MENTIONED THAT INTERFERE WITH THE NEW CONSTRUCTION SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER. BEFORE PROCEEDING WITH DEMOLITION WORK, NOTIFY THE ENGINEER OF DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THE DRAWINGS.
8. HAZARDOUS MATERIALS ARE NOT ANTICIPATED TO BE ENCOUNTERED. IF SUSPECTED HAZARDOUS MATERIALS ARE DISCOVERED, IMMEDIATELY NOTIFY THE OWNER.
9. CAVITIES LEFT BY STRUCTURE REMOVAL SHALL BE BACKFILLED WITH SATISFACTORY MATERIAL AND COMPACTED TO 98% OF MAXIMUM DENSITY PER ASTM D698 - STANDARD PROCTOR.
10. PAVEMENT MARKINGS TO BE REMOVED SHALL BE PAINTED OVER TO MATCH PAVEMENT OR REMOVED WITH WIRE BRUSHING.
11. EXCEPT AS SHOWN, NO TREES SHALL BE REMOVED AND/OR VEGETATION DISTURBED WITHOUT APPROVAL OF THE ENGINEER.

LAYOUT AND PAVING NOTES:

1. THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO BEGINNING WORK.
2. PROVIDE A SMOOTH AND FLUSH TRANSITION BETWEEN EXISTING TO REMAIN AND NEW PAVEMENT, SIDEWALKS, AND CURBS . FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL UTILITIES PRIOR TO INSTALLATION OF PAVEMENT.
3. CONCRETE WALKS AND PADS SHALL HAVE A BROOM FINISH CONSTRUCTED PERPENDICULAR TO THE TRAVEL PATH. ALL CONCRETE SHALL BE 4,000 P.S.I. UNLESS OTHERWISE NOTED. CURB RAMPS, SIDEWALK SLOPES, AND DRIVEWAY RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL CURRENT LOCAL REQUIREMENTS. IF APPLICABLE, THE CONTRACTOR SHALL REQUEST INSPECTION OF SIDEWALK AND RAMP FORMS FROM THE AUTHORITY HAVING JURISDICTION PRIOR TO PLACEMENT OF CONCRETE.
4. DIMENSIONS ARE TO THE FACE OF CURB, EDGE OF CONCRETE, OR TO THE FACE OF BUILDING, UNLESS OTHERWISE NOTED.
5. PARKING STRIPES SHALL BE 4-INCH WHITE PAVEMENT PAINT, UNLESS OTHERWISE NOTED. LANE STRIPES SHALL BE 4 INCH PAVEMENT PAINT, COLOR AS INDICATED ON PLAN. STOP BARS AND CROSSWALK MARKINGS SHALL BE 24-INCH WHITE PAVEMENT PAINT.
6. CONCRETE CONTRACTION JOINTS SHALL BE CONSTRUCTED TO A DEPTH OF AT LEAST 1/4 THE CONCRETE THICKNESS AND SHALL DIVIDE CONCRETE ROUGHLY INTO SQUARES WITH MAXIMUM 10-FOOT DIMENSIONS. CONCRETE EXPANSION JOINTS SHALL BE INSTALLED AT MAXIMUM 60-FOOT SPACING AND AT ALL ABUTTING RIGID OBJECTS.
7. MAINTAIN ONE SET OF RECORD DRAWINGS MARKUPS ON THE JOB SITE FOR DISTRIBUTION TO THE ENGINEER UPON COMPLETION.
8. THE CONTRACTOR SHALL PROVIDE AN AS-BUILT SURVEY CONSISTING OF THE FOLLOWING:
   - 8.1. THE SURVEY SHALL BE PREPARED, SIGNED AND SEALED BY A SURVEYOR REGISTERED IN THE STATE IN WHICH THIS PROJECT RESIDES AND SUBMITTED TO THE ENGINEER IN ELECTRONIC FORMAT PRIOR TO COMPLETION OF THE PROJECT. THE SURVEY SHALL BE PREPARED USING THE SAME HORIZONTAL AND VERTICAL DATUM AS THE ORIGINAL SURVEY.
   - 8.2. SHOWING ALL BUILDINGS, CURB LINES, EDGES OF PAVEMENT, SIDEWALKS, AND PARKING STRIPING.
   - 8.3. LOCATING ALL UNDERGROUND UTILITIES WITHIN THE LIMITS OF THE PROJECT INCLUDING: GREASE TRAP, OIL/WATER SEPARATOR, DRAINAGE AND SANITARY STRUCTURES, WATER VALVES, METERS, PIV'S, AND HYDRANTS.
   - 8.4. INCLUDING ALL ACCESSIBLE PATHS, PEDESTRIAN RAMPS AND LANDINGS, AND ACCESSIBLE PARKING AREAS INCLUDING AISLES AND DROP-OFF/PICK-UP AREAS. DIMENSION FULL LENGTH AND WIDTH OF ALL PEDESTRIAN RAMPS AND LANDINGS. SHOW ELEVATIONS AND SLOPES, INCLUDING LONGITUDINAL AND CROSS SLOPES FOR ALL ACCESSIBLE AREAS.

GRADING AND DRAINAGE NOTES:

1. NOTIFY LOCAL UTILITY LOCATOR SERVICE (CALL 811 OR SUBMIT ON-LINE) OF INTENDED DEMOLITION / GRADING / EXCAVATION / UTILITY TRENCHING CONSTRUCTION.
2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, PROTECT UTILITIES TO REMAIN, AND REPAIR CONTRACTOR-CAUSED DAMAGE ACCORDING TO LOCAL STANDARDS AT CONTRACTOR'S EXPENSE.
3. CONSTRUCT INITIAL TEMPORARY EROSION CONTROL PRIOR TO BEGINNING GRADING OPERATIONS.
4. NO TREES SHALL BE REMOVED NOR VEGETATION DISTURBED EXCEPT AS NECESSARY FOR GRADING PURPOSES. ALL TREES, INCLUDING YOUNG SAPLINGS, PINES, AND UNDERSTORY SPECIES SHALL BE PROTECTED IF THEY FALL OUTSIDE THE PROPOSED LIMITS OF GRADING, EVEN IF THEY ARE NOT LOCATED OR IDENTIFIED ON THE PLANS. DO NOT OPERATE OR STORE HEAVY EQUIPMENT, NOR HANDLE/STORE MATERIALS WITHIN THE DRIPLINES OF TREES TO BE PROTECTED.
5. TREE PROTECTION SHALL CONSIST OF THE FOLLOWING STEPS:
   - 5.1. CONTRACTOR SHALL HIRE A LICENSED LANDSCAPE CONTRACTOR TO OVERSEE TREE PROTECTION.
   - 5.2. PRIOR TO ANY GRADING OPERATIONS, LOCATE TREES TO BE PROTECTED AND NEATLY CUT ROOTS TO A DEPTH OF 30-INCHES AT THE DRIP LINE OR THE DIMENSIONED LIMITS SHOWN USING A UTILITY TRENCHING MACHINE.
   - 5.3. TREAT EXPOSED ROOTS WITH A HORTICULTURAL TREE PRUNING PROTECTION PRODUCT.
   - 5.4. PRUNE TREE LIMBS BY THE SAME PROPORTIONAL PERCENTAGE AS TREE ROOTS REMOVED (I.E., 25% OF ROOTS REMOVED SHALL RESULT IN 25% OF TREE LIMBS REMOVED).
   - 5.5. INSTALL A MINIMUM 4-FOOT HIGH CONSTRUCTION FENCE TO THE LIMITS SHOWN.
   - 5.6. BEGIN CLEARING AND GRADING OPERATIONS.
6. EXISTING CONDITIONS ARE FROM A PRE-CONSTRUCTION TOPOGRAPHIC SURVEY PROVIDED BY LAND SURVEYING SERVICES INC., DATED 10/10/2023.
7. THE CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS AND INVERTS PRIOR TO BEGINNING WORK. INSTALL STORM SEWERS BEGINNING AT THE DISCHARGE TIE POINT ELEVATION AND THEN PROCEEDING UPSTREAM.
8. TOPSOIL SHALL BE STRIPPED FROM ALL CUT AND FILL AREAS, STOCKPILED AND REDISTRIBUTED OVER GRADED AREAS TO A MINIMUM DEPTH OF 6-INCHES. CONSTRUCT TEMPORARY STOCKPILES FREE DRAINING AND PROVIDE EROSION AND SEDIMENT CONTROLS AROUND AREA.
9. SATISFACTORY TOPSOIL IS DEFINED AS MATERIAL FREE OF SUBSOIL, CLAY LUMPS, STONES, OBJECTS OVER 1-INCH IN DIAMETER, OR CONTAMINANTS.
10. TOP OF GRATE ELEVATIONS FOR CURB INLETS ARE GIVEN TO THE CENTER OF THE INLETS AT THE FACE OF CURB. THE GRATES SHALL SLOPE LONGITUDINALLY WITH THE PAVEMENT GRADE. ADJUST THE CASTING HOOD TO FALL ALONG THE CURB LINE.
11. IN THE EVENT OF ANY DISCREPANCIES FOUND IN THE DRAWINGS OR IF PROBLEMS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
12. SPOT ELEVATIONS AND CONTOURS REPRESENT PROPOSED FINISHED GRADE AND TOP OF FINISHED PAVEMENT.
13. CONTOUR LINES AND SPOT ELEVATIONS ARE THE RESULT OF A DETAILED ENGINEERING GRADING DESIGN AND REFLECT A PLANNED INTENT WITH REGARD TO DRAINAGE. THE CONTRACTOR IS RESPONSIBLE FOR GRADING ALL AREAS TO POSITIVELY DRAIN. SHOULD THE CONTRACTOR HAVE ANY QUESTION OF THIS INTENT OR ANY PROBLEMS WITH CONTINUITY OF GRADES, THE ENGINEER SHALL BE CONTACTED PRIOR TO BEGINNING WORK.
14. ALL PERMANENT CUT AND FILL SLOPES SHALL BE NO STEEPER THAN 3 HORIZONTAL:1 VERTICAL. TEMPORARY CUT SLOPES SHALL BE NO STEEPER THAN 2 HORIZONTAL:1 VERTICAL UNLESS TEMPORARY SHORING IS PROVIDED, OR UNLESS AUTHORIZED BY A LICENSED GEOTECHNICAL ENGINEER.
15. CONTRACTOR SHALL DISPOSE OF EXCESS MATERIAL OFF THE OWNER'S PROPERTY IN A LEGAL MANNER AT NO ADDITIONAL COST.
16. EXISTING MANHOLE, VALVE AND CATCH BASIN CASTINGS TO REMAIN SHALL BE RESET TO MATCH NEW GRADE. BUILDING ADDITION FINISH FLOOR ELEVATIONS SHALL MATCH EXISTING.
17. ALL CURBS, PAVEMENT AND SIDEWALKS SHALL BE BACKFILLED FLUSH WITH TOPSOIL, SEEDED AND MULCHED.
18. ALL PIPES UNDER PAVED AREAS SHALL BE BACKFILLED WITH CRUSHED STONE. ALL PIPES UNDER LAWN AREAS SHALL BE BACKFILLED WITH SATISFACTORY MATERIAL COMPACTED TO 98% OF MAXIMUM PER ASTM D698 - STANDARD PROCTOR.
19. ALL HEADWALLS SHALL HAVE A MINIMUM 10' x 20' x 1.5' RIP-RAP APRON INSTALLED USING 8" MINIMUM DIAMETER STONE, UNLESS OTHERWISE SPECIFIED.
20. FINAL FINISH GRADE TOLERANCES SHALL BE MAXIMUM 0.10 FOOT ABOVE OR BELOW DESIGN ELEVATIONS WITHIN PAVED AREAS, AND MAXIMUM 0.25 FOOT ABOVE OR BELOW DESIGN FINISH ELEVATIONS IN OTHER AREAS. NO TOLERANCE IS ALLOWED WHEN MAXIMUM OR MINIMUM SLOPES ARE SPECIFIED.
21. ADA PARKING AND LOADING AREAS SHALL NOT EXCEED 2.0% IN ANY DIRECTION. ADA ACCESS ROUTES SHALL NOT EXCEED 2.0% CROSS SLOPE AND 5.0% LONGITUDINAL SLOPE, EXCEPT WHERE ADA RAMPS ARE SPECIFIED. ADA RAMPS SHALL NOT EXCEED 2.0% CROSS SLOPE AND 8.33% LONGITUDINAL SLOPE.
22. EARTHWORK FILL SHALL INCLUDE STRIPPING TOPSOIL AND PLACING ENGINEERED FILL IN MAXIMUM 8" COMPACTED LIFTS WITH DENSITY OF 98% OF MAXIMUM PER ASTM D698 - STANDARD PROCTOR.
23. A GEOTECHNICAL REPORT HAS NOT BEEN PREPARED FOR THIS SITE.
24. PROVIDE AN AS-BUILT SURVEY BY A LICENSED SURVEYOR TO INCLUDE ALL STORMWATER MANAGEMENT FEATURES, UNDERGROUND BASINS, PONDS, BIOSWALES, RAIN GARDENS, WATER QUALITY UNITS, AND OUTLET STRUCTURES.
25. ALL STORM DRAINAGE PIPE SHALL BE HDPE UNLESS OTHERWISE NOTED. PIPE LENGTHS SHOWN ARE APPROXIMATE TWO-DIMENSIONAL LENGTHS FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.

SITE UTILITIES NOTES:

1. WATER AND SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE LOCAL CODES AND SPECIFICATIONS.
2. THE CONTRACTOR IS PARTICULARLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF THE EXISTING UTILITIES SHOWN IS BASED ON LIMITED TOPOGRAPHIC SURVEYS AND RECORD DRAWINGS. THE CONTRACTOR SHALL NOT RELY ON THIS INFORMATION AS BEING EXACT OR COMPLETE. SHOULD UNCHARTED UTILITIES BE ENCOUNTERED DURING EXCAVATION OPERATIONS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AS SOON AS POSSIBLE FOR INSTRUCTIONS.
3. MAINTAIN 10-FOOT HORIZONTAL AND 18-INCH VERTICAL SEPARATION BETWEEN SANITARY SEWER AND WATER SUPPLY LINES.
4. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE SEQUENCING OF CONSTRUCTION FOR ALL UTILITY LINES SO THAT WATER LINES, GAS LINES, AND UNDERGROUND ELECTRIC DO NOT CONFLICT WITH SANITARY SEWERS OR STORM SEWERS. INSTALL UTILITIES PRIOR TO FINAL PAVEMENT SURFACE CONSTRUCTION.
5. BACKFILL UTILITY TRENCHES UNDER PAVEMENT AREAS WITH CRUSHED STONE. BACKFILL UTILITY TRENCHES IN LAWN AREAS WITH SATISFACTORY FILL MATERIAL COMPACTED TO AT LEAST 98% OF MAXIMUM PER ASTM D698 - STANDARD PROCTOR.
6. ADJUST ALL NEW AND EXISTING-TO-REMAIN UTILITY SURFACE FEATURES, INCLUDING BUT NOT LIMITED TO CASTINGS, FIRE HYDRANTS, VALVE BOXES, PEDESTALS, CLEANOUTS, ETC. TO MATCH PROPOSED FINISH GRADE.
7. THRUST BLOCK ALL WATERLINE FITTINGS WITH CONCRETE (2,500 P.S.I. MIN.) POURED AGAINST UNDISTURBED EARTH TO SUSTAIN 120 PERCENT TEST PRESSURE SPECIFIED. FORM THRUST BLOCKING SO AS TO NOT EMBED JOINTS, BOLTS, VALVE BOXES OR OPERATING NUTS.
8. PROVIDE COMBINATION AIR/VACUUM VALVE AT HIGH POINTS IN WATERLINE AS NECESSARY FOR EXPELLING AIR DURING FILLING OF WATERLINE. PROVIDE BRONZE CORPORATION STOP FOR CLOSING VALVE DURING TESTING AND SERVICE. LEAVE COMBINATION AIR/VACUUM VALVE COMPONENTS PLUGGED AND ATTACHED TO PIPE AFTER SUCCESSFUL TEST.
9. CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS AND INVERTS PRIOR TO BEGINNING WORK. INSTALL GRAVITY SEWER BEGINNING AT THE TIE POINT ELEVATION AND THEN PROCEEDING UPSTREAM.
10. ALL MANHOLES SHALL HAVE MINIMUM CLEAR OPENING OF 24". ADJUST CASTINGS TO SLOPE LONGITUDINALLY WITH ROAD GRADES AS REQUIRED.
11. CONTRACTOR SHALL MAINTAIN A MARKED-UP SET OF AS-BUILT PLANS SHOWING ALL NEW UTILITIES AND EXISTING UTILITIES ENCOUNTERED DURING CONSTRUCTION. DRAWINGS SHALL INCLUDE VERTICAL AND HORIZONTAL INFORMATION EITHER BY FIELD SURVEY ON THE APPROPRIATE STATE PLANE COORDINATE SYSTEM, OR BY FIELD MEASUREMENTS INCLUDING AT LEAST TWO DIMENSIONS FROM KNOWN SITE FEATURES/MONUMENTS TO EACH MANHOLE, CATCH BASIN, AND PIPING APPURTENANCES.
12. ALL SANITARY SEWER PIPE SHALL BE SDR 35 PVC UNLESS NOTED OTHERWISE.
13. ALL FIRE HYDRANT ASSEMBLIES SHALL BE INSTALLED BETWEEN 3' AND 7' FROM PAVED SURFACE.
14. ALL FIRE HYDRANTS SHALL MEET CURRENT AWWA STANDARD C502.
15. NON-METALLIC PIPE SHALL BE INSTALLED WITH DETECTION TAPE OR OTHER ACCEPTABLE MEANS OF DETECTION.

EROSION PREVENTION AND SEDIMENT CONTROL (EPSC) NOTES:

1. REFER TO STORMWATER POLLUTION PREVENTION PLAN (SWPPP) BOUND NARRATIVE FOR ADDITIONAL REQUIREMENTS.
2. CONSTRUCT TEMPORARY EPSC MEASURES AS SHOWN ON THE DRAWINGS PRIOR TO BEGINNING GRADING OPERATIONS.
3. ALL DRAINAGE STRUCTURES, PIPES WITHIN THE LIMITS OF CONSTRUCTION AND IMMEDIATELY DOWNSTREAM OF THE SITE, AND STORMWATER FACILITIES SHALL HAVE SEDIMENT REMOVED PRIOR TO FINAL ACCEPTANCE.
4. SILT BARRIERS AND SEDIMENT BASINS SHALL BE CLEANED OF ACCUMULATED SEDIMENT WHEN APPROXIMATELY 50% FILLED.
5. ALL GRADED AREAS NOT RECEIVING STONE OR PAVEMENT STABILIZATION SHALL RECEIVE TEMPORARY SEEDING WITHIN 10 DAYS OF REACHING FINAL SUBGRADE ELEVATION.
6. ALL LOCATIONS OF TEMPORARY EPSC DEVICES SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER.
7. WHEN THE EPSC DEVICES ARE NO LONGER REQUIRED FOR THE INTENDED PURPOSE (IN THE OPINION OF THE ENGINEER), THEY SHALL BE REMOVED.
8. REPLACE DAMAGED AND WORN OUT SILT BARRIERS AS DIRECTED BY THE ENGINEER.
9. PROVIDE EROSION CONTROL MATTING (NORTH AMERICAN GREEN SC 150 OR EQUAL) TO SLOPES 3:1 OR STEEPER. EROSION CONTROL MATTING SHALL BE PHOTODEGRADABLE OR BIODEGRADABLE.
10. DEWATERING OF EXCAVATION AREA SHALL BE COMPLETED ONLY WITH PRE-APPROVED PUMPING AND FILTERING EQUIPMENT. PUMPING RATE SHALL NOT EXCEED 80% OF THE RECOMMENDED MAXIMUM RATE BY SEDIMENT TANK / FILTER BAG MANUFACTURER.
11. THE ENGINEER, WHOSE SEAL IS AFFIXED TO THIS DOCUMENT, CERTIFIES THAT THESE PLANS HAVE BEEN PREPARED BY UNDER HIS/HER DIRECT SUPERVISION. THIS PROJECT IS PLANNED TO DISTURB MORE THAN ONE ACRE, IT THEREFORE FALLS UNDER THE STATE'S GENERAL NPDES PERMIT TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY. THE ENGINEER WILL ASSIST THE CONTRACTOR IN SUBMITTING THE 'NOTICE OF INTENT (NOI) TO CONSTRUCT' TO THE STATE AT LEAST 30 DAYS PRIOR TO BEGINNING LAND DISTURBANCE.

CITY OF CRYSTAL LAKE STANDARD EROSION AND SEDIMENT CONTROL NOTES

1. CONTROL MEASURES SHALL MEET THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE ILLINOIS URBAN MANUAL UNLESS STATED OTHERWISE.
2. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. AREAS OF THE DEVELOPMENT SITE THAT ARE NOT TO BE DISTURBED SHALL BE PROTECTED FROM CONSTRUCTION TRAFFIC OR OTHER DISTURBANCE UNTIL FINAL STABILIZATION IS ACHIEVED.
3. SOIL STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR, DEVELOPMENT SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES
4. STABILIZATION BY SEEDING SHALL INCLUDE TOPSOIL PLACEMENT AND FERTILIZATION, AS NECESSARY.
5. NATIVE SEED MIXTURES SHALL INCLUDE RAPID-GROWING ANNUAL GRASSES OR SMALL GRAINS TO PROVIDE INITIAL, TEMPORARY SOIL STABILIZATION.
6. OFF-SITE PROPERTY SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. VELOCITY DISSIPATION DEVICES SHALL BE PLACED AT CONCENTRATED DISCHARGE LOCATIONS AND ALONG THE LENGTH OF ANY OUTFALL CHANNEL, AS NECESSARY TO PREVENT EROSION.
7. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE DISTURBANCE OF TRIBUTARY AREAS.
8. STABILIZATION OF DISTURBED AREAS SHALL BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING OR OTHER EARTH-DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE DEVELOPMENT SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE DEVELOPMENT SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION OF DISTURBED AREAS SHALL BE INITIATED WITHIN ONE WORKING DAY OF PERMANENT OR TEMPORARY CESSATION OF EARTH-DISTURBING ACTIVITIES AND SHALL BE COMPLETED AS SOON AS POSSIBLE, BUT NOT LATER THAN 14 CALENDAR DAYS FROM THE INITIATION OF STABILIZATION WORK IN AN AREA. EXCEPTIONS TO THESE TIME FRAMES ARE SPECIFIED BELOW:
   - 8.a. WHERE THE INITIATION OF STABILIZATION MEASURES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE; AND
   - 8.b. IN AREAS WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED AND WILL RESUME AFTER 14 DAYS, A TEMPORARY STABILIZATION METHOD MAY BE USED.
9. DISTURBANCE OF STEEP SLOPES SHALL BE MINIMIZED. AREAS OR EMBANKMENTS HAVING SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH STAKED-IN-PLACE SOD, EROSION CONTROL BLANKETS IN COMBINATION WITH SEEDING, OR AN EQUIVALENT CONTROL MEASURE.
10. PERIMETER CONTROL MEASURES SHALL BE PROVIDED DOWNSLOPE AND PERPENDICULAR TO THE FLOW OF RUNOFF FROM DISTURBED AREAS, WHERE THE TRIBUTARY AREA IS GREATER THAN 5,000 SQUARE FEET, AND WHERE RUNOFF WILL FLOW IN A SHEET FLOW MANNER. PERIMETER EROSION CONTROL SHALL ALSO BE PROVIDED AT THE BASE OF SOIL STOCKPILES.
11. THE STORMWATER MANAGEMENT SYSTEM SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION DOWNSLOPE FROM DISTURBED AREAS. INLET PROTECTION THAT REDUCES SEDIMENT LOADING, WHILE ALLOWING RUNOFF TO ENTER THE INLET, SHALL BE REQUIRED FOR ALL STORM SEWERS. CHECK DAMS, OR AN EQUIVALENT CONTROL MEASURE, SHALL BE REQUIRED FOR ALL CHANNELS. FILTER FABRIC INLET PROTECTION AND STRAW BALE DITCH CHECKS ARE NOT ACCEPTABLE CONTROL MEASURES.
12. IF DEWATERING SERVICES ARE USED, DISCHARGES SHALL BE ROUTED THROUGH AN EFFECTIVE SEDIMENT CONTROL MEASURE (E.G., SEDIMENT TRAP OR AN EQUIVALENT CONTROL MEASURE). THE ENFORCEMENT OFFICER SHALL BE NOTIFIED PRIOR TO THE COMMENCEMENT OF DEWATERING ACTIVITIES.
13. ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL STABILIZATION OF THE DEVELOPMENT SITE IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NECESSARY. TRAPPED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED.
14. STOCKPILED SOIL AND MATERIALS SHALL BE REMOVED FROM FLOOD HAZARD AREAS AT THE END OF EACH WORK DAY. SOIL AND MATERIALS STOCKPILED IN IWMC OR BUFFER AREAS SHALL BE PLACED ON TIMBER MATS, OR AN EQUIVALENT CONTROL MEASURE.
15. EFFECTIVE CONTROL MEASURES SHALL BE UTILIZED TO MINIMIZE THE DISCHARGE OF POLLUTANTS FROM THE DEVELOPMENT SITE. AT A MINIMUM, CONTROL MEASURES SHALL BE IMPLEMENTED IN ORDER TO:
   - 15.a. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATER; AND
   - 15.b. MINIMIZE THE EXPOSURE OF BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTES, TRASH, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, VEHICLE FLUIDS, SANITARY WASTE, AND OTHER MATERIALS PRESENT ON THE DEVELOPMENT SITE TO PRECIPITATION AND TO STORMWATER.
16. ADEQUATE RECEPTACLES SHALL BE PROVIDED FOR THE DEPOSITING OF ALL CONSTRUCTION MATERIAL DEBRIS GENERATED DURING THE DEVELOPMENT PROCESS. THE APPLICANT SHALL NOT CAUSE OR PERMIT THE DUMPING, DEPOSITING, DROPPING, THROWING, DISCARDING OR LEAVING OF CONSTRUCTION MATERIAL DEBRIS UPON OR INTO ANY DEVELOPMENT SITE, CHANNEL, OR IWMC. THE DEVELOPMENT SITE SHALL BE MAINTAINED FREE OF CONSTRUCTION MATERIAL DEBRIS.
17. THE ENFORCEMENT OFFICER MAY REQUIRE ADDITIONAL OR ALTERNATE SOIL EROSION AND SEDIMENT CONTROL MEASURES, BASED ON DEVELOPMENT-SITE-SPECIFIC CONSIDERATIONS AND THE EFFECTIVENESS OF THE INSTALLED CONTROL MEASURES.

CITY OF CRYSTAL LAKE STANDARD DRAIN TILE NOTES

1. DRAIN TILES DISTURBED DURING REGULATED DEVELOPMENT SHALL BE RECONNECTED BY THOSE RESPONSIBLE FOR THEIR DISTURBANCE, UNLESS THE DEVELOPMENT PLANS SPECIFY ABANDONMENT OF THE DRAIN TILES.
2. ALL ABANDONED DRAIN TILES WITHIN DISTURBED AREAS SHALL BE REMOVED IN THEIR ENTIRETY.
3. DRAIN TILES WITHIN THE DISTURBED AREA OF A DEVELOPMENT SITE SHALL BE REPLACED, BYPASSED AROUND THE DEVELOPMENT SITE OR INTERCEPTED AND CONNECTED TO THE STORMWATER MANAGEMENT SYSTEM FOR THE DEVELOPMENT SITE. THE SIZE OF THE REPLACED OR BYPASSED DRAIN TILE SHALL BE EQUIVALENT TO THE EXISTING DRAIN TILE.

811 Know what's below. Call before you dig.

Gresham Smith
GreshamSmith.com
222 Second Avenue South
Suite 1400
Nashville, TN 37201
615.770.8100

STORAGE OF AMERICA

439 E TERRA COTTA AVENUE
CRYSTAL LAKE, IL 60014

LICENSED PROFESSIONAL ENGINEER
MICHAEL DUANE HUNKLER
062-052189
STATE OF ILLINOIS

12/06/2023

Revision

No.	Date	Description

GENERAL NOTES

C001

46724.01
12.06.2023

This Line Is 3 Inches When Printed Full Size

\\global.gspdata\mna_nf08\46724\01\Work\01CAD\06L-P\Sheets\46724.01_C000.dwg - Nicholas Coates - 12/6/2023 2:46:28 PM

American National

Commercial Real Estate
Due Diligence Management

3465 South Arlington Rd Suite E#183
Akron, OH 44312

866.290.8121
www.amnational.net

ALTA/NSPS Land Title Survey

5 Site Portfolio

Surveyor Certification

5413 E. Terra Cotta Avenue
Crystal Lake, IL 60014
County of McHenry

TO: FIRST AMERICAN TITLE INSURANCE COMPANY;
STORAGE OF AMERICA LLC;
AMERICAN NATIONAL, LLC,

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 5, 6A, 6B, 7B1, 8, 9, 11A, 11B, 13, 16, 17, 19, 20 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON MARCH 24, 2023.

DATE OF PLAT OR MAP: 3/30/2023

Surveyor's signature
Gloria Jean Koter
Land Surveying Services Inc.
1182 Heather Drive, Lake Zurich, IL 60047
JKoter@LandSurveyingServices.com
Project Reference Number: 20230368-02

Drawing Revisions	
Added title information	3/29/23
Network comments	3/30/23
Additional topo	10/10/23
Network comments	11/17/23
Additional Manholes	3/13/24
Revised inlet of Manhole 10	3/14/24

Legal Description

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF MCHENRY, STATE OF ILLINOIS, AND IS DESCRIBED AS FOLLOWS:

THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 33, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS: BEGINNING AT A POINT IN THE NORTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER, 422.55 FEET WEST OF THE NORTHEAST CORNER THEREOF; THENCE SOUTH PARALLEL WITH THE EAST LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER, 825.17 FEET, MORE OR LESS, TO A LINE 495 FEET NORTH OF AND PARALLEL TO THE SOUTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER; THENCE WEST ON A LINE, 495 FEET NORTH OF AND PARALLEL TO THE SOUTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER, 210.53 FEET, MORE OR LESS, TO A LINE 686.40 FEET EAST AND PARALLEL TO THE WEST LINE OF THE SOUTHEAST QUARTER; THENCE NORTH ON A LINE 686.4 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF THE SOUTHEAST QUARTER, 825.54 FEET, MORE OR LESS, TO THE NORTH LINE OF THE SOUTHEAST QUARTER; THENCE EAST ON THE NORTH LINE OF THE SOUTHEAST QUARTER, 207.05 FEET, MORE OR LESS, TO THE PLACE OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS.

The land shown in this survey is the same as that described in First American Title Insurance Company Commitment Number AF1032118 with an effective date of January 23, 2023.

General Notes

1. Field Work Completed on 3-24-2023
2. Prepared for American National.
3. Site Address: 5413 E. Terra Cotta Avenue, Crystal Lake, IL 60014
4. Pin No.: 14-33-401-003
5. The easements shown hereon are provided from the current title. No search of the records for easements or encumbrances was made as part of this survey.
6. Compare deed description and site conditions with the data given on this plat and report any discrepancies to the surveyor at once.
7. Refer to a current title commitment for any building lines or easements not shown on this plat.
8. There is no evidence of recent earth moving work, building construction or building additions at time of fieldwork.
9. There is no evidence of proposed changes in street right of way lines at time of fieldwork.
10. Property Area: 172,298 Square Feet (3.96 Acres)
11. Parking Spaces: 0 Spaces
12. Basis of Bearing is the center line of Terra Cotta Avenue as labeled on survey as N89°25'03"E 207.05' Rec.
13. The property has direct physical access to Terra Cotta Avenue, a public right of way.
14. The record description of property mathematically closes with no gaps, gores or overlaps.
15. The distance to the nearest intersecting street, Erick Street, is 673.11 feet and is shown on the survey.
16. There was no evidence of any refuse or use as a solid waste dump at time of fieldwork.
17. There was no evidence of any cemeteries, individual grave sites, or burial grounds at the time of fieldwork.
18. No building was located on the property at the time of fieldwork.
19. Benchmark - On Site

BM Bolt on power pole located near the northeast corner of property (as shown on survey)
Elevation = 904.58'

20. Benchmarks established using GPS Topnet Network. Benchmark coordinate system SPCIL83/NAVD88.
21. No wetlands were located on property at time of fieldwork.

Notes Corresponding to Schedule B

(13) RIGHTS OF THE PUBLIC, THE STATE OF ILLINOIS AND THE MUNICIPALITY IN AND TO THAT PART OF THE LAND, IF ANY, TAKEN OR USED FOR ROAD PURPOSES.
NOT PLOTTABLE - BLANKET IN NATURE

(14) RIGHTS OF WAY FOR DRAINAGE TILES, DITCHES, FEEDERS AND LATERALS, IF ANY.
NOT PLOTTABLE - BLANKET IN NATURE

(15) RIGHTS OF THE INTERESTED PARTIES TO THE FREE AND UNOBSTRUCTED FLOW OF THE WATERS OF THE STREAM WHICH MAY FLOW ON OR THROUGH THE LAND.
NOT PLOTTABLE - BLANKET IN NATURE

(16) TERMS, CONDITIONS AND PROVISIONS OF ORDINANCE NO. ENTITLED AN ORDINANCE ANNEXING CERTAIN TERRITORY TO THE CITY OF CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS RECORDED JULY 22, 2016 AS DOCUMENT 2016R0026427.
NOT PLOTTABLE - BLANKET IN NATURE

Legend of Symbols & Abbreviations

- FOUND IRON PIPE
- SET IRON PIPE
- FIRE HYDRANT
- WATER MANHOLE
- WATER VALVE
- TRANS. POLE
- UTILITY POLE
- CULVERT PIPE
- CATCH BASIN
- J.U.L.I.E. WATER
- J.U.L.I.E. CATV
- INLET
- TELEPHONE PED
- TELEPHONE BOX
- MONITORING WELL
- LIGHT POLE
- ELEC. METER
- CATV BOX
- WELL
- SIGN
- J.U.L.I.E. GAS
- TREE
- STORM MANHOLE
- TOP CURB
- BOTTOM CURB
- DEPRESSED CURB
- T/P TOP PIPE
- B/P BOTTOM PIPE
- METAL FENCE
- CHAIN LINK FENCE
- OVERHEAD WIRES
- STORM LINE
- WATER LINE

Zoning Information

ZONING INFORMATION: E- Estate

	Requirement	Actual
Minimum Front Setback	50 Feet	N/A
Minimum Side Setback	20 Feet	N/A
Minimum Rear Setback	20 Feet	N/A
Minimum Lot Size	130,680 Sq. Ft. or 3 Acres	172,298 Sq. Ft.
Minimum Lot Width/Frontage & Depth	Width: 250 Feet	207.05 Feet
Maximum Density	15%	0
Maximum Building Height	30 Feet or 2 Stories	N/A
Minimum Number of Parking Spaces	Self Storage- 1 space per 4,000 Sq. Ft. of NFA (net floor area) up to 20,000 Sq Ft PLUS 1 space per 10,000 Sq Ft of NFA (net floor area) above 20,000 Sq Ft PLUS 1 per vehicle used in the conduct of the business	0 Spaces

The source of this information is: Global Zoning American National
Job Number: 20230368- Site 2 Date: March 28, 2023

Vicinity Map



Inverts

1. Storm Inlet 1 — RIM = 895.99' — Unable to Open
2. Storm Catch Basin 2 — RIM = 894.90' — N = 891.54'
3. Water Manhole 3 — RIM = 895.80' — 12" W: Waterman — S(F) = 884.00' — S(R) = 884.10' — B/P = 881.90'
4. Storm Catch Basin 4 — RIM = 889.29' — Unable to open
5. Storm Catch Basin 5 — RIM = 891.24' — SW 12" Conc. = 885.74'
6. Storm Catch Basin 6 — RIM = 891.02' — NE 12" Conc. = 882.72' — NW 12" Conc. = 882.67'
7. F.E.S. 7 — SE 12" Conc. = 882.70'
8. F.E.S. 8 — SE 12" Conc. = 883.71'
9. Storm Catch Basin 9 — RIM = 895.97' — E 15" Conc. = 882.80' — W 15" Conc. = 882.73'
10. Storm Manhole 10 — RIM = 896.48' — E 15" Conc. = 882.10'

Scale 1"=40'
0 40 80

FLOOD NOTE: By graphic plotting only, this property is in Zone "X" of the Flood Insurance Rate Map,Community Panel No. 17111C0335J ,which bears an effective date of 11/16/2006 and is not in a Special Flood Hazard Area.

Encroachment Statement

1. Sidewalk extends East 0.83' over East Property Line
2. Asphalt extends West 4.32' over East Property Line

Utility Notes

The location of the utilities shown here on are above ground appurtenances only in the observed evidence in the process of conducting the fieldwork, which may indicate utilities on, over or below the surveyed property.

Surveyors Name: Gloria Jean Koter
Land Surveying Se
1182 Heather Drive Lake Zurich, Ill
Ph. (847)847-1079 Fax. (847)847
Professional Design Firm License No. 18
email: jkoter@landsurveyings

EXISTING CONDITIONS PLAN

C100

LEGEND

PROPERTY LINE

EXISTING PAVEMENT DEMOLITION

EXISTING TREE DEMOLITION

1 Storm Inlet 1
RIM = 895.86'
Unable to Open

2 Storm Catch Basin 2
RIM = 894.85'
N = 891.54'

3 Water Manhole 3
RIM = 895.80'
E/W 15" Watermain
T/P = 890.10'
B/P = 891.95'

4 Storm Catch Basin 4
RIM = 889.29'
Unable to open

5 Storm Catch Basin 5
RIM = 891.24'
SW 12" Conc. = 885.74'

6 Storm Catch Basin 6
RIM = 891.02'
NE 12" Conc. = 882.72'
NW 12" Conc. = 882.87'

7 Culvert Pipe 7
SE 12" Conc. = 882.70'

Erick Street
East Right of Way Line

41.03' Rec.

35.70' Rec.

596.39' Rec.

REMOVE EXISTING TREES ON-SITE AS necessary.
SEE SHEET L200 FOR TREE REMOVAL DETAILS.

DEMOLISH PAVEMENT AND CURB AND GUTTER. SAW CUT CURB AND GUTTER AT TIE IN POINTS

SAWCUT CURB AND GUTTER AT PROPOSED DRIVEWAY LOCATION

N 00°31'11" E 825.54' Rec.

S 00°16'43" W 825.17' Rec.

S 89°19'59" W 210.53' Rec.

N 89°25'03" E 207.05' Rec.

Basis of Bearings

Lot 1
Wolfs Erick Street Sub.
Doc. 2003R0166012

Lot 2
Wolfs Erick Street Sub.
Doc. 2003R0166012

Lot 3
Erick Street Commons Sub.
Doc. 2016R0034791

14-33-401-006
Unsubdivided
172,298 Sq. Feet
3.96 Acres

14-33-401-003
Unsubdivided
172,298 Sq. Feet
3.96 Acres

14-33-401-004
Unsubdivided

Owner Sequoia Precision Capital, LLC

Owner Geithe Christensen TR

Owner Karen R Rev TR Theines

Owner 419 E Terra Cotta Ave LLC
P.I.N.: 14-33-401-005

Owner Lake Lake, LLC
P.I.N.: 14-33-401-010

Concrete

Asphalt

Iron Rod Found 0.09' W

Iron Pipe Found 0.16' W 0.06'

Iron Rod Found 0.17' N

Fence Corner S 1.73'

Fence Corner E 0.61'

Existing Building T/F = 889.05'

Iron Rod Found S 0.42' E 0.18'

Iron Pipe Found 0.10' N 0.08'

Tree 40"
Tree 30"
Tree 50"
Tree 24"
Tree 36"
Tree 48"
Tree 58"
Tree 22"
Tree 30"

Sidewalk E 0.83'

Asphalt W 4.32'

Direct Access

Center Line of Right of Way

Full Right-In Only

66' Public Right of Way

Terra Cotta Avenue

Encroachment Statement

1. Sidewalk extends East 0.83' over East Property Line
2. Asphalt extends West 4.32' over East Property Line

Utility Notes

The location of the utilities shown here on are above ground appurtenances only in the observed evidence in the process of conducting the fieldwork, which may indicate utilities on, over or below the surveyed property.

NORTH

30' 0 30' 60'
GRAPHIC SCALE

Gresham Smith

GreshamSmith.com

222 Second Avenue South
Suite 1400
Nashville, TN 37201

615.770.8100

STORAGE OF AMERICA

439 E TERRA COTTA AVENUE
CRYSTAL LAKE, IL 60014

MICHAEL DUANE HUNKLER
062-052189
LICENSED PROFESSIONAL ENGINEER OF ILLINOIS

04/01/2024

Revision

No.	Date	Description
1	03.28.2024	CITY COMMENTS

DEMOLITION PLAN

C101

46724.01
12.06.2023

This Line Is 3 Inches When Printed Full Size

\\global.gspdata\vnfna_nf08\46724010\Work\01CAD\06LP\Sheets\4672401_C101.dwg - Nicholas Coates - 4/1/2024 11:02:41 AM

no evidence of any refuse or use as a solid waste dump at
k.

no evidence of any cemeteries, individual grave sites, or
at the time of fieldwork.

was located on the property at the time of fieldwork.

- On Site

ower pole located near the northeast corner of property (as
n survey).
evation = 904.58'

s established using GPS Topnet Network. Benchmark
em SPCIL83/NAVD88.

s were located on property at time of fieldwork.



STORAGE BUILDING #	BUILDING AREA (S.F.)
1	5,400
2	1,400
3	1,050
4	3,000
5	3,600
6	2,125
7	900
8	7,200
9	12,000
10	5,600
11	3,300
Total	45,575
Total Site Area (S.F.)	164,013
Ratio	28%

UTILITY CONTACTS

ELECTRIC
COMMONWEALTH EDISON CO.
CONTACT: COMMERCIAL APPLICATIONS
PHONE: 877-426-6331

WATER (FIRE LINE)
CITY OF CRYSTAL LAKE PUBLIC WORKS DEPARTMENT
CONTACT: ADAM BEHRNS
PHONE: 815-459-2020

SEWER
NOT USED

GAS
NOT USED

SITE DATA TABLE

1. CURRENT ZONING: E ESTATE (REZONE TO M PUD MANUFACTURING)
   SETBACKS: FRONT = 80'
   SIDE = 15'
   SIDE = 15'
   REAR = 20'
2. SITE AREA: 164,013 S.F. = 3.77 ACRES
3. STORAGE BUILDING AREA: 45,575 S.F. GROSS AREA
4. STORAGE PARKING REQUIRED : 7 SPACES (1 PER 4,000 SF NFA UP TO 20,000 SF + 1 PER 10,000 SF NFA ABOVE 20,000 SF + 1 PER VEHICLE USED IN THE CONDUCT OF THE BUSINESS)
   PARKING PROVIDED : 4 SPACES*
5. EXISTING IMPERVIOUS AREA = 0.00 ACRES = 0.0%
   EXISTING PERVIOUS AREA = 3.77 ACRES = 100%
6. PROPOSED IMPERVIOUS AREA = 2.22 ACRES = 59.1%
   PROPOSED LANDSCAPE AREA = 1.55 ACRES = 40.9%

*CUSTOMER WILL DRIVE TO THEIR STORAGE UNIT TO PARK. THE PARKING NEAR THE KIOSK IS USED ONLY FOR LEASING UNITS AND TERMINATING LEASING UNITS.

SITE NOTES:

1. WALL PACKS WILL BE PROVIDED ON ALL BUILDINGS TO ILLUMINATE THE DRIVE AISLE. SEE ARCHITECTURAL PLANS FOR DETAILS.
2. EACH BUILDING WILL HAVE A DRY PIPE SPRINKLER SYSTEM. SEE FIRE PROTECTION PLANS.

NORTH

30' 0 30' 60'
GRAPHIC SCALE

Gresham Smith

GreshamSmith.com

222 Second Avenue South
Suite 1400
Nashville, TN 37201

615.770.8100

STORAGE OF AMERICA

439 E TERRA COTTA AVENUE
CRYSTAL LAKE, IL 60014

Michael D. Hunkler
LICENSED PROFESSIONAL ENGINEER
MICHAEL DUANE HUNKLER
062-052189
OF ILLINOIS
04/01/2024

Revision

No.	Date	Description
1	03.28.2024	CITY COMMENTS

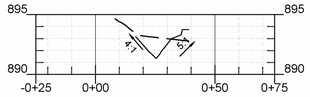
SITE LAYOUT AND UTILITY PLAN

C200

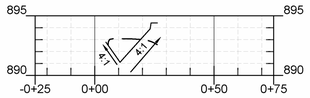
46724.01
12.06.2023

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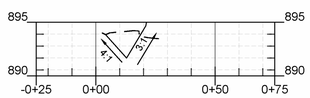
\\global.gspdata\nfna_n\08\46724\01\Work\01\CAD\06LP\Sheets\46724\01_C200.dwg - Nicholas Coates - 4/1/2024 3:32:55 PM



SWALE A PROFILE
SCALE H:1"=30'; V:1"=6'



SWALE B PROFILE
SCALE H:1"=30'; V:1"=6'



SWALE C PROFILE
SCALE H:1"=30'; V:1"=6'

Erick Street
East Right of Way Line
BORING SAMPLE SWM-1
EXISTING GRADE = 890.20
PROPOSED GRADE = 888.50
SEASONAL HIGH GROUNDWATER ELEV. = 884.40
BORING SAMPLE SWM-2
EXISTING GRADE = 890.20
PROPOSED GRADE = 889.50
SEASONAL HIGH GROUNDWATER ELEV. = 885.50
BORING SAMPLE SWM-3
EXISTING GRADE = 896.50
PROPOSED GRADE = 888.50
SEASONAL HIGH GROUNDWATER ELEV. ≤ 884.50
INFILTRATION POND
H.W.L. (100-YEAR W.S.E.) = 892.38
N.W.L. (DRY POND) = 888.50-889.50
EMERGENCY SPILLWAY
04 C902
TOP OF BERM
ELEV. = 893.50
Lot 1
Wolfs Erick Street Sub.
Doc 2003R016012
Lot 3
Erick Street Commons Sub.
Doc 2016R003791
14-33-401-006
Unsubdivided
N 00°31'11" E 825.54' Rec.
S 00°16'43" W 825.17' Rec.
S 89°19'59" W 215.3' Rec.
N 89°25'03" E 207.0' Rec.
41.03' Rec.
35.70' Rec.
Basis of Bearings
Center Line of Right of Way
Terra Cotta Avenue
by: Public Road
Iron Rod Found On Line 0.07'
Fence Corner 3' L 3'
Concrete
Asphalt
Owner: Sequoia Precision Capital LLC
Owner: 419 E Terra Cotta Ave LLC
PIN: 14-33-401-003
Owner: Jon Finkbeiner
PIN: 14-33-401-005
Existing Building 899.95'
Existing Building 899.95'
Existing Building 899.95'

description of property mathematically closes with no gaps, ps.

e to the nearest intersecting street, Erick Street, is 673.11 wn on the survey.

no evidence of any refuse or use as a solid waste dump at k.

no evidence of any cemeteries, individual grave sites, or at the time of fieldwork.

was located on the property at the time of fieldwork.

- On Site

ower pole located near the northeast corner of property (as n survey)
evation = 904.58'

s established using GPS Topnet Network. Benchmark em SPCIL83/NAVD88.

s were located on property at time of fieldwork.



Gresham Smith

GreshamSmith.com

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LICENSED PROFESSIONAL ENGINEER
MICHAEL DUANE HUNKLER
062-052189
OF ILLINOIS

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INITIAL EPSC PLAN

C400

46724.01
12.06.2023

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y has direct physical access to Terra Cotta Avenue, a public

description of property mathematically closes with no gaps, ps.

e to the nearest intersecting street, Erick Street, is 673.11 vn on the survey.

no evidence of any refuse or use as a solid waste dump at k.

no evidence of any cemeteries, individual grave sites, or at the time of fieldwork.

was located on the property at the time of fieldwork.

- On Site

ower pole located near the northeast corner of property (as n survey).
evation = 904.58'

s established using GPS Topnet Network. Benchmark em SPCIL83/NAVD88.

s were located on property at time of fieldwork.



TEMPORARY SEDIMENT TRAP OPERATION AND MAINTENANCE:

1. INSPECT TEMPORARY SEDIMENT TRAP AFTER EACH PERIOD OF SIGNIFICANT RAINFALL. REMOVE SEDIMENT AND RESTORE THE TRAP TO ITS ORIGINAL DESIGN DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO A DEPTH OF 15 INCHES. PLACE THE SEDIMENT THAT IS REMOVED IN AREAS ON SITE TO BE STABILIZED AND REPLACE STONE FACING AS NEEDED.
2. CHECK THE EMBANKMENT FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO VERIFY IT IS A MINIMUM OF 1.5 FEET BELOW THE LOW POINT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIP-RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED AS SOON AS PRACTICAL. REMOVE ANY ACCUMULATED SEDIMENT, TRASH OR DEBRIS FROM THE SPILLWAY STRUCTURE.
3. AFTER ALL SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED AND PROPERLY DEWATERED, REMOVE THE SEDIMENT TRAP AND ALL SEDIMENT. DISPOSE OF EXCAVATED SEDIMENT BY PLACING IN AREAS ON SITE TO BE STABILIZED. REFER TO SHEET L200 FOR FINAL STABILIZATION PLAN.

1. Storm Inlet 1 — RIM = 895.86' — Unable to Open
2. Storm Catch Basin 2 — RIM = 894.85' — N = 891.54'
3. Water Manhole 3 — RIM = 895.80' — E/W 15" Watermain T/P = 890.10' — B/P = 891.95'
4. Storm Catch Basin 4 — RIM = 889.29' — Unable to open
5. Storm Catch Basin 5 — RIM = 891.24' — SW 12" Conc. = 885.74'
6. Storm Catch Basin 6 — RIM = 891.02' — NE 12" Conc. = 882.72' — NW 12" Conc. = 882.87'
7. Culvert Pipe 7 — SE 12" Conc. = 882.70'

TRIBUTARY AREA TO SEDIMENT TRAP
3.31 ACRES

02 C904 — TEMPORARY SEDIMENT TRAP
TOP OF SETTLED EMBANKMENT ELEV. = 891.00
DESIGN HWEL = 889.79
PRINCIPAL SPILLWAY CREST ELEV. = 889.50

02 C903 — SILT FENCE

05 C904 — PERMANENT RIP-RAP AT PIPE OUTLET

01 C904 — TEMPORARY SOIL STOCKPILE

AREA TO BE TEMPORARILY STABILIZED WITH NORTH AMERICAN GREEN SC-150BN EROSION CONTROL FABRIC

BYPASS STORM SEWER FOR OFF-SITE RUN-ON. SEE SHEET C300 FOR PIPE AND STRUCTURE INFORMATION. PROVIDE MINIMUM 2' COVER OVER STORM SEWER

CONSTRUCTION ENTRANCE — 03 C903

TEMPORARY STONE CULVERT INLET PROTECTION — 06 C904

03 C903 — CONSTRUCTION ENTRANCE

Erick Street — East Right of Way Line — 41.03' Rec. — 35°10' Rec. — 596.38' Rec.

Terra Cotta Avenue — 66' Public Right of Way — Basis of Bearings — N 89°25'03" E 207.05' Rec.

N 00°31'11" E 825.54' Rec.

S 00°16'43" W 825.17' Rec.

S 89°19'59" W 210.53' Rec.

Lot 1 — Wolfs Erick Street Sub. Doc. 2003R0156012

Lot 2 — Wolfs Erick Street Sub. Doc. 2003R0156012

Lot 3 — Erick Street Commons Sub. Doc. 2016R0034791

14-33-401-006 Unsubdivided

14-33-401-003 Unsubdivided

14-33-401-004 Unsubdivided

NORTH

30' 0 30' 60'
GRAPHIC SCALE

Gresham Smith

GreshamSmith.com

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MICHAEL DUANE HUNKLER
062-052189
OF ILLINOIS

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INTERMEDIATE EPSC PLAN

C401

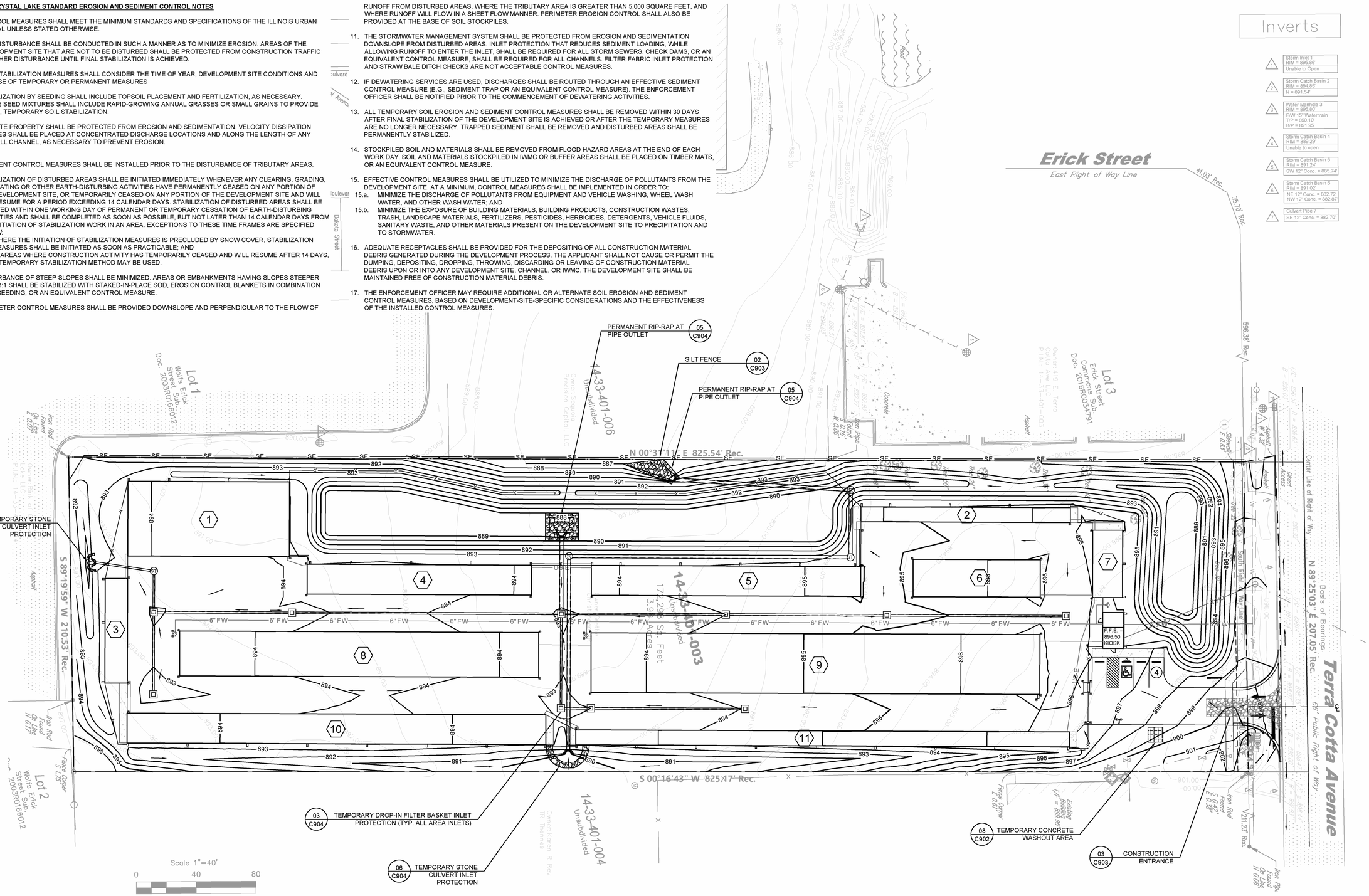
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12.06.2023

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CITY OF CRYSTAL LAKE STANDARD EROSION AND SEDIMENT CONTROL NOTES

1. CONTROL MEASURES SHALL MEET THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE ILLINOIS URBAN MANUAL UNLESS STATED OTHERWISE.
2. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. AREAS OF THE DEVELOPMENT SITE THAT ARE NOT TO BE DISTURBED SHALL BE PROTECTED FROM CONSTRUCTION TRAFFIC OR OTHER DISTURBANCE UNTIL FINAL STABILIZATION IS ACHIEVED.
3. SOIL STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR, DEVELOPMENT SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES
4. STABILIZATION BY SEEDING SHALL INCLUDE TOPSOIL PLACEMENT AND FERTILIZATION, AS NECESSARY.
5. NATIVE SEED MIXTURES SHALL INCLUDE RAPID-GROWING ANNUAL GRASSES OR SMALL GRAINS TO PROVIDE INITIAL, TEMPORARY SOIL STABILIZATION.
6. OFF-SITE PROPERTY SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. VELOCITY DISSIPATION DEVICES SHALL BE PLACED AT CONCENTRATED DISCHARGE LOCATIONS AND ALONG THE LENGTH OF ANY OUTFALL CHANNEL, AS NECESSARY TO PREVENT EROSION.
7. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE DISTURBANCE OF TRIBUTARY AREAS.
8. STABILIZATION OF DISTURBED AREAS SHALL BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING OR OTHER EARTH-DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE DEVELOPMENT SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE DEVELOPMENT SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION OF DISTURBED AREAS SHALL BE INITIATED WITHIN ONE WORKING DAY OF PERMANENT OR TEMPORARY CESSATION OF EARTH-DISTURBING ACTIVITIES AND SHALL BE COMPLETED AS SOON AS POSSIBLE, BUT NOT LATER THAN 14 CALENDAR DAYS FROM THE INITIATION OF STABILIZATION WORK IN AN AREA. EXCEPTIONS TO THESE TIME FRAMES ARE SPECIFIED BELOW:
   - 8.a. WHERE THE INITIATION OF STABILIZATION MEASURES IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE; AND
   - 8.b. IN AREAS WHERE CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED AND WILL RESUME AFTER 14 DAYS, A TEMPORARY STABILIZATION METHOD MAY BE USED.
9. DISTURBANCE OF STEEP SLOPES SHALL BE MINIMIZED. AREAS OR EMBANKMENTS HAVING SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH STAKED-IN-PLACE SOD, EROSION CONTROL BLANKETS IN COMBINATION WITH SEEDING, OR AN EQUIVALENT CONTROL MEASURE.
10. PERIMETER CONTROL MEASURES SHALL BE PROVIDED DOWNSLOPE AND PERPENDICULAR TO THE FLOW OF RUNOFF FROM DISTURBED AREAS, WHERE THE TRIBUTARY AREA IS GREATER THAN 5,000 SQUARE FEET, AND WHERE RUNOFF WILL FLOW IN A SHEET FLOW MANNER. PERIMETER EROSION CONTROL SHALL ALSO BE PROVIDED AT THE BASE OF SOIL STOCKPILES.
11. THE STORMWATER MANAGEMENT SYSTEM SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION DOWNSLOPE FROM DISTURBED AREAS. INLET PROTECTION THAT REDUCES SEDIMENT LOADING, WHILE ALLOWING RUNOFF TO ENTER THE INLET, SHALL BE REQUIRED FOR ALL STORM SEWERS. CHECK DAMS, OR AN EQUIVALENT CONTROL MEASURE, SHALL BE REQUIRED FOR ALL CHANNELS. FILTER FABRIC INLET PROTECTION AND STRAW BALE DITCH CHECKS ARE NOT ACCEPTABLE CONTROL MEASURES.
12. IF DEWATERING SERVICES ARE USED, DISCHARGES SHALL BE ROUTED THROUGH AN EFFECTIVE SEDIMENT CONTROL MEASURE (E.G., SEDIMENT TRAP OR AN EQUIVALENT CONTROL MEASURE). THE ENFORCEMENT OFFICER SHALL BE NOTIFIED PRIOR TO THE COMMENCEMENT OF DEWATERING ACTIVITIES.
13. ALL TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL STABILIZATION OF THE DEVELOPMENT SITE IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NECESSARY. TRAPPED SEDIMENT SHALL BE REMOVED AND DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED.
14. STOCKPILED SOIL AND MATERIALS SHALL BE REMOVED FROM FLOOD HAZARD AREAS AT THE END OF EACH WORK DAY. SOIL AND MATERIALS STOCKPILED IN IWMC OR BUFFER AREAS SHALL BE PLACED ON TIMBER MATS, OR AN EQUIVALENT CONTROL MEASURE.
15. EFFECTIVE CONTROL MEASURES SHALL BE UTILIZED TO MINIMIZE THE DISCHARGE OF POLLUTANTS FROM THE DEVELOPMENT SITE. AT A MINIMUM, CONTROL MEASURES SHALL BE IMPLEMENTED IN ORDER TO:
   - 15.a. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATER; AND
   - 15.b. MINIMIZE THE EXPOSURE OF BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTES, TRASH, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, VEHICLE FLUIDS, SANITARY WASTE, AND OTHER MATERIALS PRESENT ON THE DEVELOPMENT SITE TO PRECIPITATION AND TO STORMWATER.
16. ADEQUATE RECEPTACLES SHALL BE PROVIDED FOR THE DEPOSITING OF ALL CONSTRUCTION MATERIAL DEBRIS GENERATED DURING THE DEVELOPMENT PROCESS. THE APPLICANT SHALL NOT CAUSE OR PERMIT THE DUMPING, DEPOSITING, DROPPING, THROWING, DISCARDING OR LEAVING OF CONSTRUCTION MATERIAL DEBRIS UPON OR INTO ANY DEVELOPMENT SITE, CHANNEL, OR IWMC. THE DEVELOPMENT SITE SHALL BE MAINTAINED FREE OF CONSTRUCTION MATERIAL DEBRIS.
17. THE ENFORCEMENT OFFICER MAY REQUIRE ADDITIONAL OR ALTERNATE SOIL EROSION AND SEDIMENT CONTROL MEASURES, BASED ON DEVELOPMENT-SITE-SPECIFIC CONSIDERATIONS AND THE EFFECTIVENESS OF THE INSTALLED CONTROL MEASURES.



OD NOTE: By graphic plotting only, this property is in Zone "X" of the Flood Insurance Rate Map,Community Panel No. 17111C0335J ,which bears an effective date of 11/16/2006 and is not in a Special Flood Hazard Area.

Encroachment Statement

1. Sidewalk extends East 0.83' over East Property Line
2. Asphalt extends West 4.32' over East Property Line

Utility Notes

The location of the utilities shown here on are above ground appurtenances only in the observed evidence in the process of conducting the fieldwork, which may indicate utilities on, over or below the surveyed property.

REFER TO SHEET L200 FOR FINAL STABILIZATION PLAN.

NORTH

30' 0 30' 60'
GRAPHIC SCALE

Gresham Smith
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222 Second Avenue South
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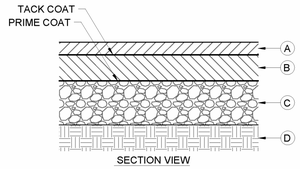
FINAL EPSC PLAN

C402

46724.01
12.06.2023

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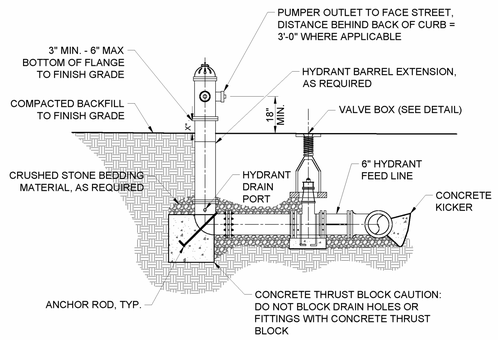
SECTION VIEW

(A) 1.5" ASPHALTIC SURFACE COURSE
(B) 2.5" ASPHALTIC BINDER
(C) 6.0" MINERAL AGGREGATE BASE COURSE COMPACTED TO 100% OF THE STANDARD PROCTOR DRY DENSITY (ASTM D698)
(D) COMPACTED SUBGRADE, 98% STANDARD PROCTOR DRY DENSITY (ASTM D698)

A GEOTECHNICAL REPORT WAS NOT PROVIDED FOR THIS PROJECT. PAVEMENT SECTION PER STORAGE OF AMERICA.

01 C901

TYPICAL ASPHALT PAVEMENT SECTION
NOT TO SCALE

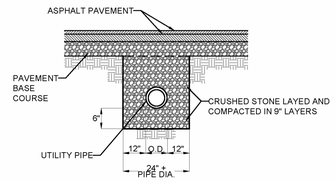


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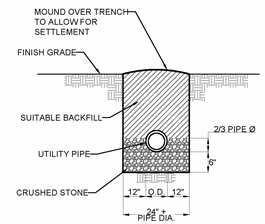
1. CRUSHED STONE SHALL BE PLACES AROUND HYDRANT DRAIN PORTS, MINIMUM OF 5 CU. FT. COVER TOP OF CRUSHED STONE WITH BUILDERS FELT BEFORE BACKFILLING.
2. HYDRANT SHALL BE VERTICALLY PLUMB.
3. HYDRANT SHALL BE PAINTED WITH TWO COATS (MIN.) OF EXTERIOR ENAMEL.
4. HYDRANT SHALL CONFORM TO LOCAL REQUIREMENTS

02 C901

FIRE HYDRANT ASSEMBLY
NOT TO SCALE



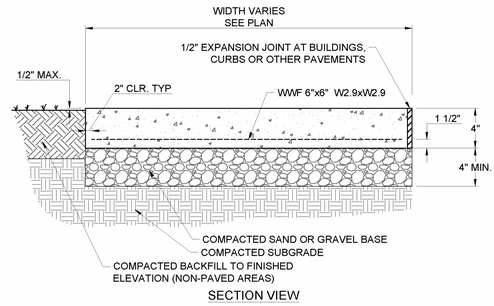
FOR PAVED AREAS



FOR GRASSED AREAS

03 C901

TYPICAL UTILITY BACKFILL
NOT TO SCALE

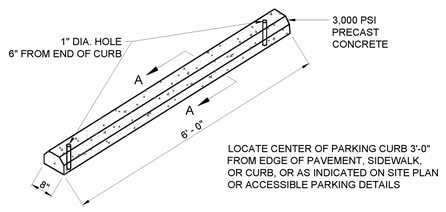


SECTION VIEW

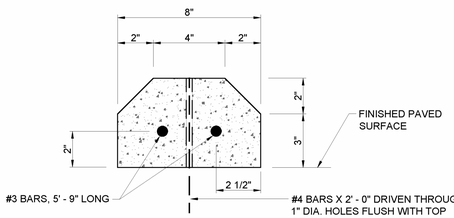
NOTES:
1. PROVIDE WEAKENED PLANE (SAW CUT OR TOOLED) TRANSVERSE CONTROL JOINTS AT 5'-0" ON CENTER.
2. PROVIDE EXPANSION JOINTS AT 30'-0" (MAX.) ON CENTER AND CONTINUOUSLY BETWEEN SIDEWALK AND WALLS OR OTHER STRUCTURES.
3. LONGITUDINAL SLOPES SHALL NOT EXCEED 5.00% (1:20)
4. CROSS SLOPES SHALL NOT EXCEED 2.00% (1:50)
5. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI (TYP.)

04 C901

CONCRETE SIDEWALK
NOT TO SCALE



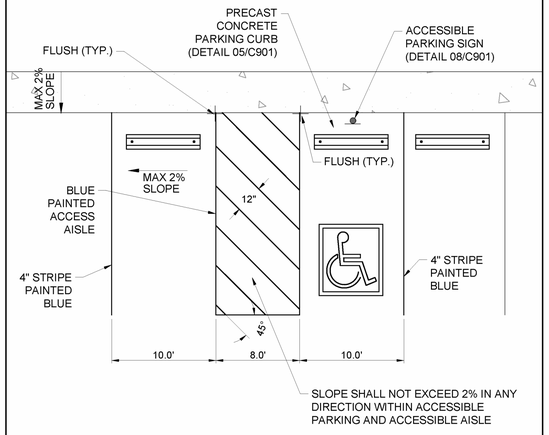
LOCATE CENTER OF PARKING CURB 3'-0" FROM EDGE OF PAVEMENT, SIDEWALK, OR CURB, OR AS INDICATED ON SITE PLAN OR ACCESSIBLE PARKING DETAILS



SECTION A-A

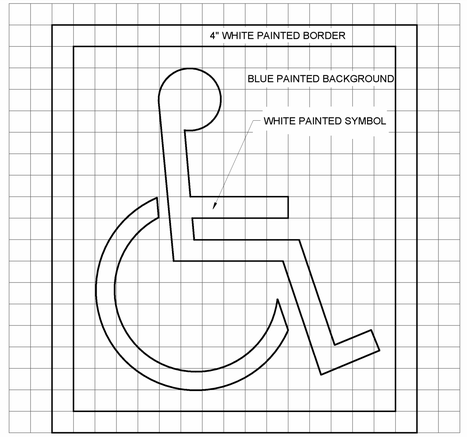
05 C901

PRECAST CONCRETE PARKING CURB
NOT TO SCALE



06 C901

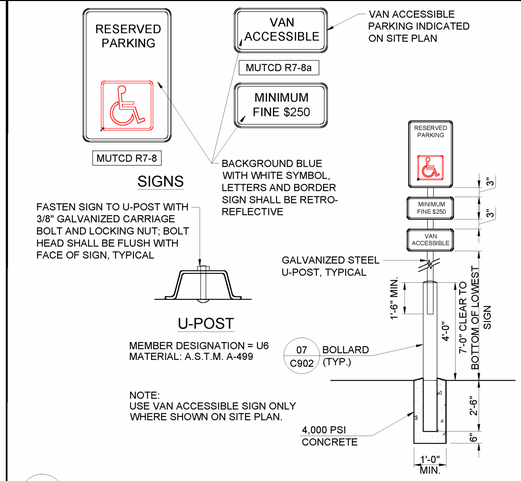
ACCESSIBLE PARKING SPACE
NOT TO SCALE



4" X 4" GRID PROVIDED FOR LAYOUT OF SYMBOL. PROVIDE PAINT COLORS IN ACCORDANCE WITH LOCAL REQUIREMENTS (TYPICALLY WHITE SYMBOL ON BLUE BACKGROUND INSIDE WHITE BORDER).

07 C901

PAINTED ACCESSIBLE SYMBOL FOR PAVEMENT
NOT TO SCALE



SIGNS

U-POST

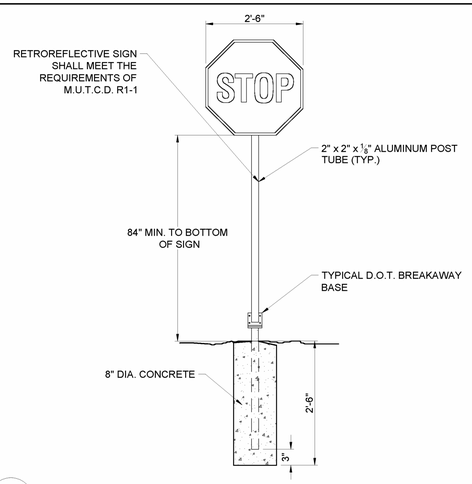
MEMBER DESIGNATION = U6
MATERIAL: A.S.T.M. A-499

07 C902 BOLLARD (TYP.)

NOTE:
USE VAN ACCESSIBLE SIGN ONLY WHERE SHOWN ON SITE PLAN.

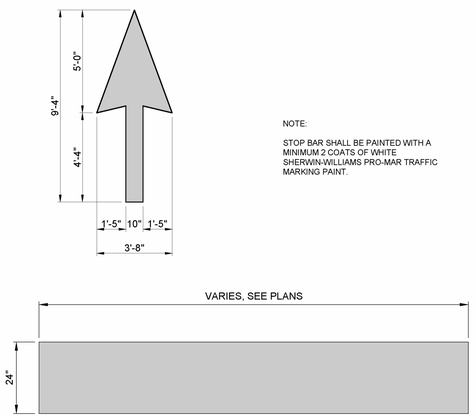
08 C901

ACCESSIBLE PARKING SIGN
NOT TO SCALE



09 C901

STOP SIGN
NOT TO SCALE

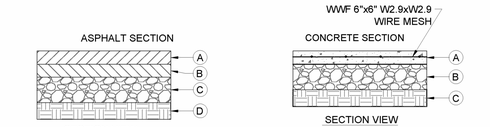


10 C901

PAVEMENT MARKING
NOT TO SCALE

11 C901

NOT USED
NOT TO SCALE



SECTION VIEW

(A) 1.5" HMA SURFACE COURSE
(B) 8.5" HMA BASE COURSE
(C) 4.0" COMPACTED GRADED AGGREGATE BASE COURSE
(D) COMPACTED SUBGRADE, 98% STANDARD PROCTOR DRY DENSITY (ASTM D698)

(A) 8.0" MESH REINFORCED CONCRETE (4,000 PSI)
(B) 4.0" GRADED AGGREGATE BASE
(C) COMPACTED SUBGRADE, 98% STANDARD PROCTOR DRY DENSITY (ASTM D698)

NOTES:

1. PAVEMENT SECTION PER IDOT STANDARDS

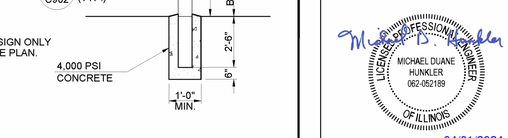
12 C901

IDOT DRIVEWAY PAVEMENT SECTION
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04/01/2024

Revision

No.	Date	Description
1	03.28.2024	CITY COMMENTS

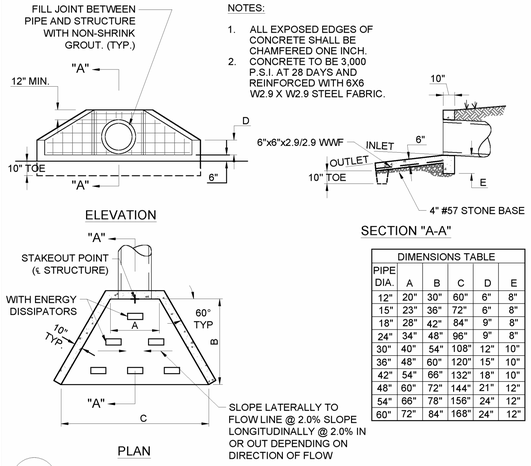
SITE DETAILS

C901

46724.01
12.06.2023

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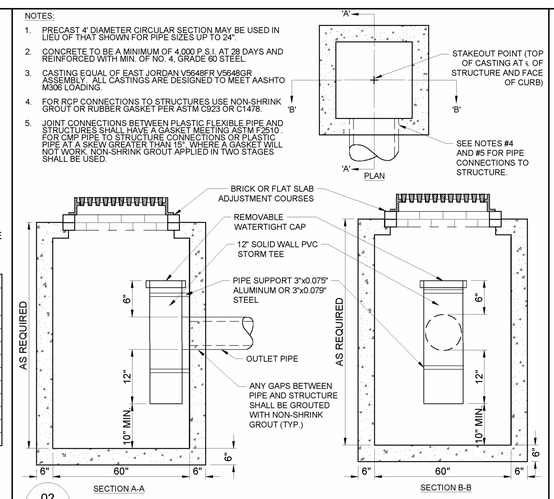
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DIMENSIONS TABLE					
PIPE DIA.	A	B	C	D	E
12"	20"	30"	60"	6"	8"
15"	23"	36"	72"	6"	8"
18"	28"	42"	84"	9"	8"
24"	34"	48"	96"	9"	8"
30"	40"	54"	108"	12"	10"
36"	48"	60"	120"	15"	10"
42"	54"	66"	132"	18"	10"
48"	60"	72"	144"	21"	12"
54"	66"	78"	156"	24"	12"
60"	72"	84"	168"	24"	12"

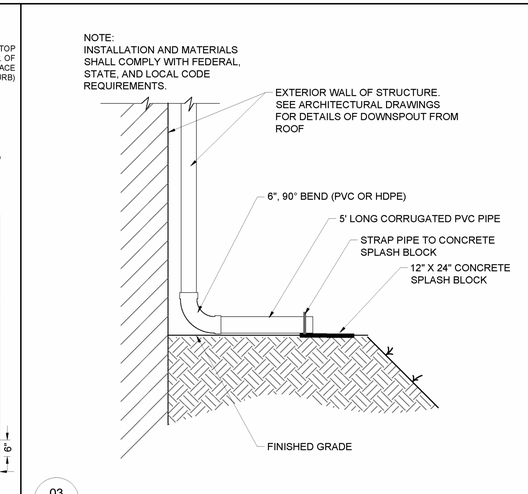
01 C902

PRECAST CONCRETE WINGED HEADWALL
NOT TO SCALE



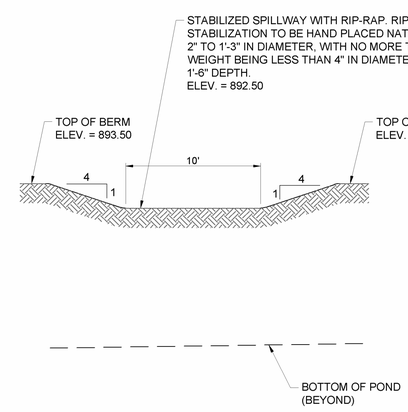
02 C902

SINGLE AREA INLET WITH SUMP
NOT TO SCALE



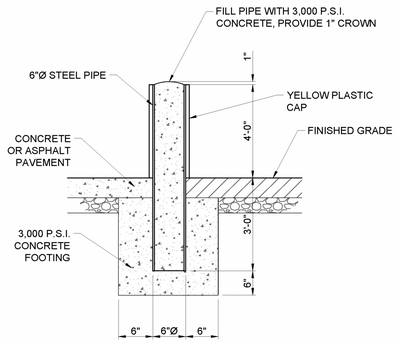
03 C902

DOWNSPOUT WITH SPLASH BLOCK
NOT TO SCALE



04 C902

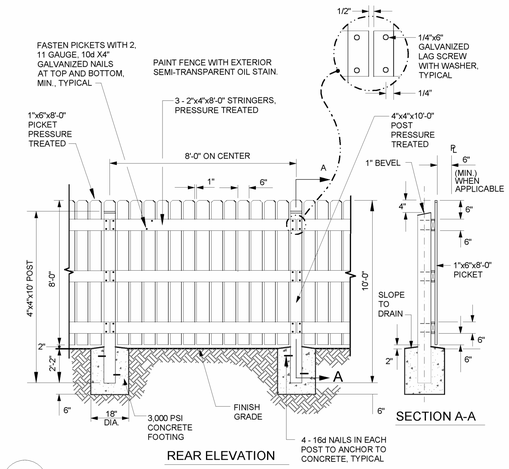
EMERGENCY SPILLWAY
NOT TO SCALE



NOTE:
BOLLARD SHALL BE PAINTED WITH EXTERIOR ENAMEL PAINT (2 COATS BEFORE INSTALLATION, 1 COAT AFTER INSTALLATION). PROVIDE 4" WIDE REFLECTIVE TAPE AT TOP.

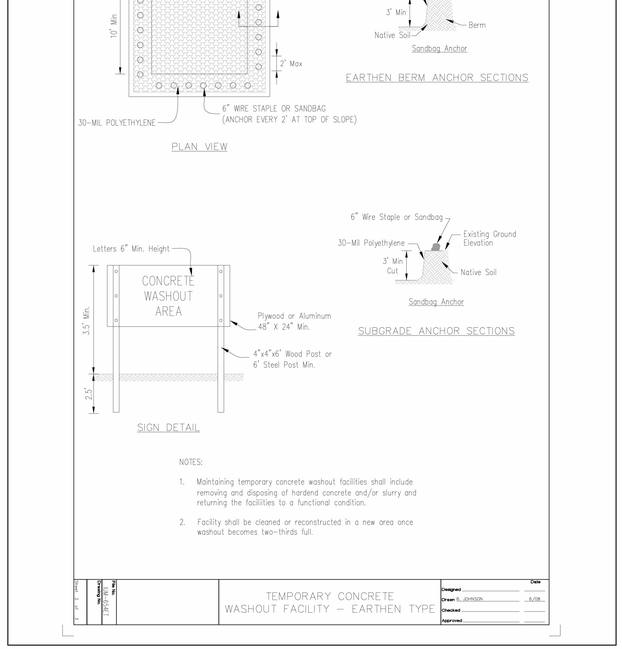
05 C902

BOLLARD
NOT TO SCALE



06 C902

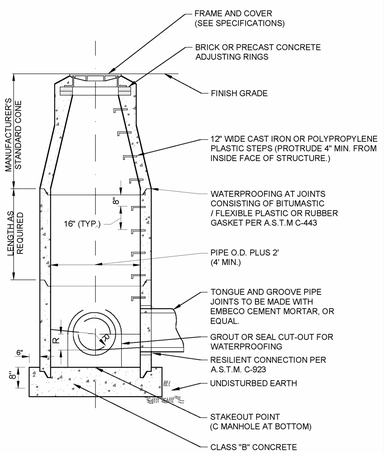
8-FOOT HIGH WOOD PRIVACY FENCE
NOT TO SCALE



08 C902

TEMPORARY CONCRETE WASHOUT AREA
NOT TO SCALE

NOTES:
1. CONCRETE TO BE 4,000 P.S.I. AT 28 DAYS AND REINFORCED WITH NO. 4, GRAD 60 BARS.
2. PROVIDE ½" THICK LEDGER PLATES WHERE MORE THAN TWO CASTINGS ARE REQUIRED.
3. CASTING EQUAL OF NEENAH 1788 OR EJIW 1040 WITH TYPE A SOLID COVER. ALL CASTINGS ARE DESIGNED TO MEET AASHTO M306 LOADING.
4. FOR RCP CONNECTIONS TO STRUCTURES USE NON-SHRINK GROUT OR RUBBER GASKET PER ASTM C923 OR C1478.
5. JOINTS BETWEEN PLASTIC FLEXIBLE PIPE AND STRUCTURES SHALL HAVE A GASKET MEETING ASTM F2510 FOR CMP PIPE TO STRUCTURE CONNECTIONS OR PLASTIC PIPE AT A SKEW GREATER THAN 15°, WHERE A GASKET WILL NOT WORK. NON-SHRINK GROUT APPLIED IN TWO STAGES SHALL BE USED.
6. ALL PRECAST CONCRETE MANHOLE SECTIONS TO BE ASTM C478, MIN. THICKNESS WALLS. CONE SECTION TO BE CONCENTRIC UNLESS OTHERWISE APPROVED BY ENGINEER.



07 C902

STORM MANHOLE
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LICENSED PROFESSIONAL ENGINEER OF ILLINOIS
MICHAEL DUANE HUNKLER
062-052189

04/01/2024

Revision		
No.	Date	Description
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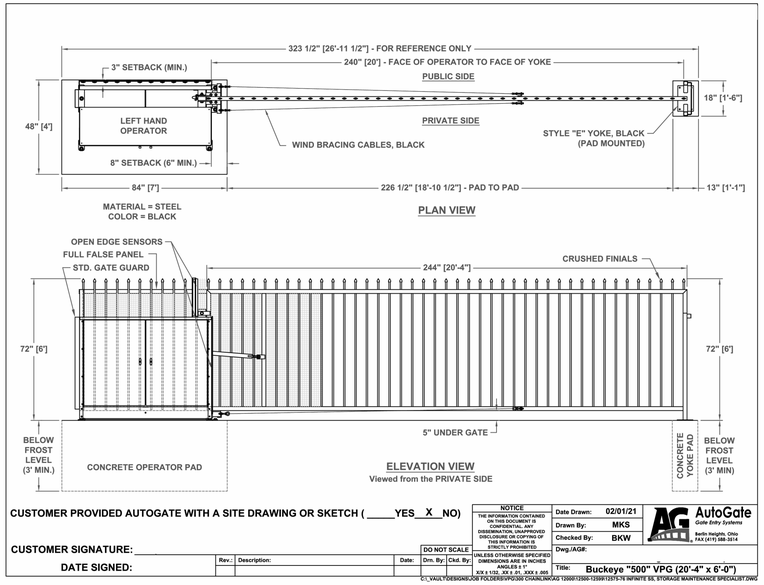
SITE DETAILS

C902

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12.06.2023

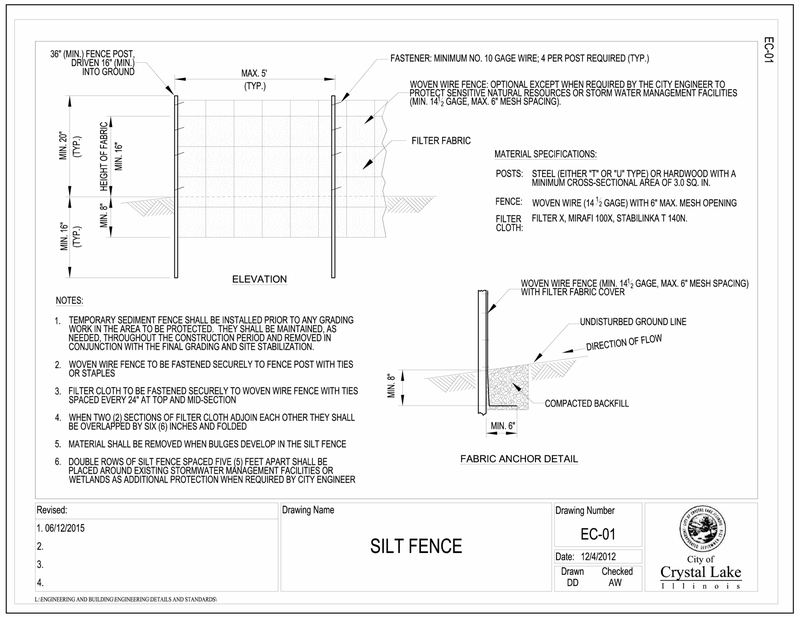
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01
C903

SECURITY GATE DETAIL
NOT TO SCALE



Revised:
1. 06/12/2015
2.
3.
4.

Drawing Name: SILT FENCE

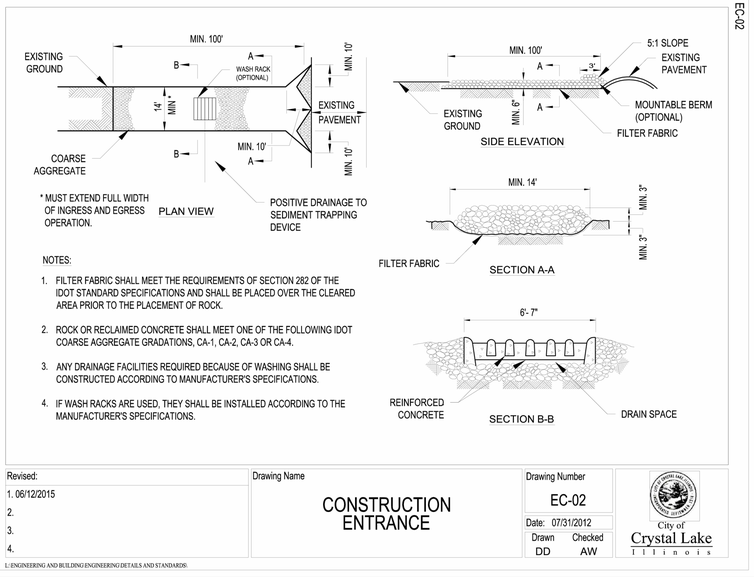
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Date: 12/4/2012
Drawn DD Checked AW

City of Crystal Lake Illinois

L:\ENGINEERING AND BUILDING ENGINEERING DETAILS AND STANDARDS\

02
C903

SILT FENCE
NOT TO SCALE



Revised:
1. 06/12/2015
2.
3.
4.

Drawing Name: CONSTRUCTION ENTRANCE

Drawing Number: EC-02
Date: 07/31/2012
Drawn DD Checked AW

City of Crystal Lake Illinois

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03
C903

CONSTRUCTION ENTRANCE
NOT TO SCALE

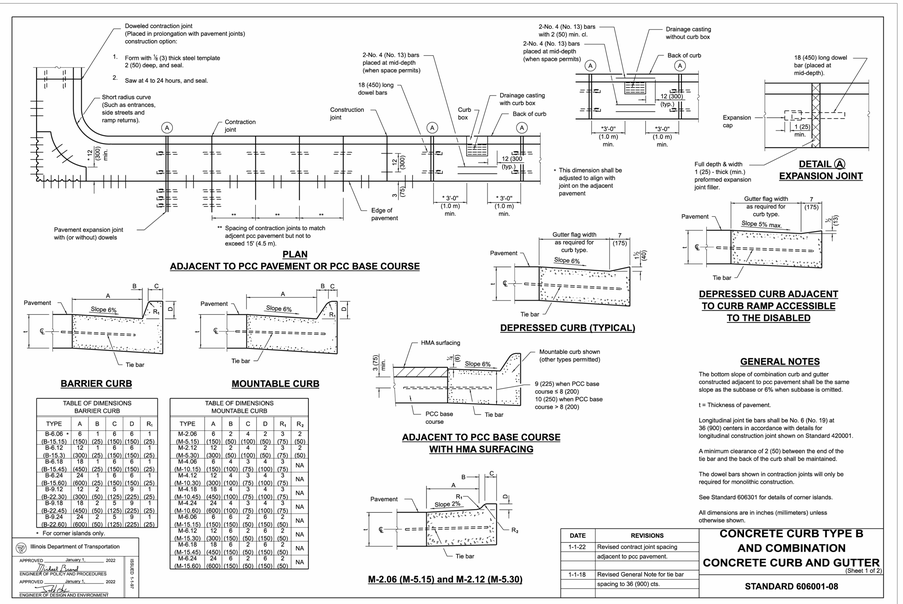


TABLE OF DIMENSIONS BARRIER CURB

TYPE	A	B	C	D	R_1
B-6.06 *	6	2	4	2	1
(B-15.15)	(150)	(25)	(100)	(50)	(25)
B-6.12	12	2	6	2	1
(B-15.3)	(300)	(25)	(150)	(50)	(25)
B-6.18	18	2	6	2	1
(B-15.45)	(450)	(25)	(150)	(50)	(25)
B-6.24	24	2	6	2	1
(B-15.60)	(600)	(25)	(150)	(50)	(25)
B-9.12	12	2	9	3	2
(B-22.30)	(300)	(50)	(125)	(225)	(25)
B-9.18	18	2	9	3	2
(B-22.45)	(450)	(50)	(125)	(225)	(25)
B-9.24	24	2	9	3	2
(B-22.60)	(600)	(50)	(125)	(225)	(25)

* For corner islands only.

TABLE OF DIMENSIONS MOUNTABLE CURB

TYPE	A	B	C	D	R_1	R_2
M-6.06	6	2	4	2	3	2
(M-5.15)	(150)	(50)	(100)	(50)	(75)	(50)
M-6.12	12	2	4	2	3	2
(M-5.30)	(300)	(50)	(100)	(50)	(75)	(50)
M-6.18	18	2	4	2	3	NA
(M-10.15)	(150)	(100)	(75)	(100)	(75)	
M-6.12	12	2	4	2	3	NA
(M-10.30)	(300)	(100)	(75)	(100)	(75)	
M-6.18	18	2	4	2	3	NA
(M-10.45)	(450)	(100)	(75)	(100)	(75)	
M-6.24	24	2	4	2	3	NA
(M-10.60)	(600)	(100)	(75)	(100)	(75)	
M-6.06	6	2	4	2	3	NA
(M-5.15)	(150)	(50)	(100)	(50)	(75)	
M-6.12	12	2	6	2	3	NA
(M-15.30)	(300)	(50)	(150)	(50)	(75)	
M-6.18	18	2	6	2	3	NA
(M-15.45)	(450)	(50)	(150)	(50)	(75)	
M-6.24	24	2	6	2	3	NA
(M-15.60)	(600)	(50)	(150)	(50)	(75)	

Illinois Department of Transportation
APPROVED _____ January 1, 2022
ENGINEER OF POLICY AND PROCEDURES
APPROVED _____ January 1, 2022
ENGINEER OF DESIGN AND ENVIRONMENT
BUREAU OF LOCAL ROADS & STREETS

DATE	REVISIONS
1-1-22	Revised contract joint spacing adjacent to pcc pavement.
1-1-18	Revised General Note for tie bar spacing to 36 (900) cts.

CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER (Sheet 1 of 2)
STANDARD 606001-08

04
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IDOT CONCRETE CURB AND GUTTER
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Revision

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1	03.28.2024	CITY COMMENTS

SITE DETAILS

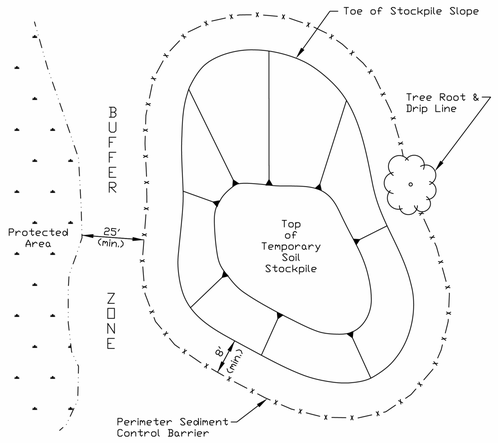
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TEMPORARY SOIL STOCKPILE DETAIL



NOTES:
1. Stockpile slopes should be based on angle of repose of the soil material to avoid potential sloughing of the slope.
2. Soil stockpile to be stabilized in accordance with practical standards.
3. Do not locate stockpile within overland drainage flow path, designated floodways, drip line or over the root crown of adjacent trees.
4. Provisions for sediment control practices may be required along haul roads and entrance/exit locations for access the soil stockpile that can create flow path for stormwater runoff.
5. Installation of benches, terraces, or slope interrupters should be considered.
6. Avoid building soil stockpiles on impervious surfaces.
7. Linear sediment trap surrounding the stockpile base may be used to control sediment.

REFERENCE
Project
Designed _____ Date _____
Checked _____ Date _____
Approved _____ Date _____

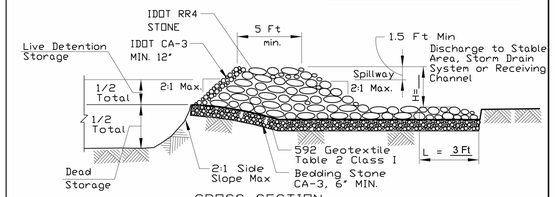
STANDARD DWG. NO. IUM-627
SHEET 1 OF 1
DATE JANUARY 2017

01 C904

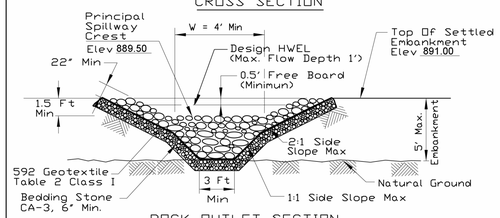
TEMPORARY SOIL STOCKPILE
NOT TO SCALE

TEMPORARY SEDIMENT TRAP (ROCK OUTLET)

DRAINAGE AREA LIMITED TO 1-5 ACRES



CROSS SECTION



ROCK OUTLET SECTION

NOTES:
1. The sediment drop side slopes shall be constructed 2:1 or flatter and temporarily stabilized.
2. The rock outlet fill shall be constructed using IDOT RR-4 stone size. A 1' layerof IDOT CA-3 should be placed on the inside face to reduce the flow rate.
3. The rock will be placed according to construction specification 25 ROCKFILL. Placement will be by Method 1 and compaction will be class III.
4. The geotextile shall meet the requirements in material specification 592 GEOTEXTILE table 2, class I.

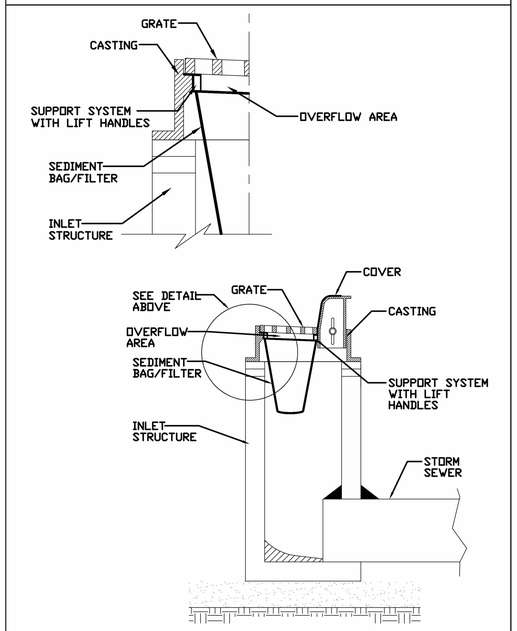
REFERENCE
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Designed _____ Date _____
Checked _____ Date _____
Approved _____ Date _____

STANDARD DWG. NO. IUM-660R
SHEET 1 OF 1
DATE 10-05-2017

02 C904

TEMPORARY SEDIMENT TRAP
NOT TO SCALE

INLET PROTECTION - PAVED AREAS DROP-IN PROTECTION



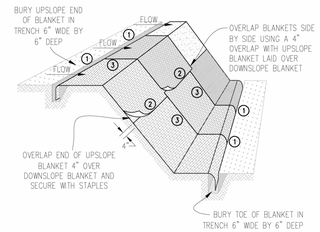
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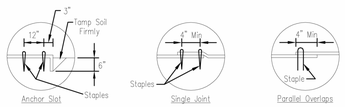
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SHEET 1 OF 1
DATE 01-11-11

03 C904

TEMPORARY DROP-IN FILTER BASKET INLET PROTECTION
NOT TO SCALE

EROSION CONTROL BLANKET INSTALLATION DETAILS





DETAIL 1 DETAIL 2 DETAIL 3



STAPLE DETAIL PUSH PIN DETAIL

NOTES:
1. Staples shall be placed in a diamond pattern at 2 per s.y. for stiched blankets. Non-stiched shall use 4 staples per s.y. of material. This equates to 200 staples with stiched blanket and 400 stapels with non-stiched blanket per 100 s.y. of material.
2. Staple or push pin lengths shall be selected based on soil type and conditions. (minimum staple length is 6")
3. Erosion control material shall be placed in contact with the soil over a prepared seedbed.
4. All anchor slots shall be stapled at approximately 12" intervals.

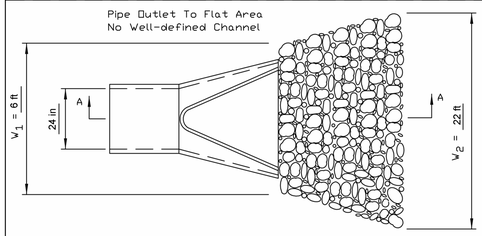
EROSION CONTROL BLANKET INSTALLATION DETAILS

Designed _____ Date _____
Drawn N. JOHNSON 11/08/...
Checked _____
Approved _____

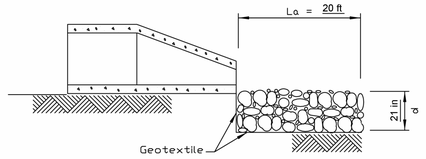
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EROSION CONTROL BLANKET
NOT TO SCALE

PIPE OUTLET TO FLAT AREA



PLAN



SECTION A-A

NOTES:
1. The filter fabric shall meet the requirements in material specifications 592 GEOTEXTILE Table 1 or 2, class I, II or III.
2. The rock riprap shall shall meet the IDOT requirements for the following gradation: RR 4, Quality Rock Type 1.
3. The riprap shall be placed according to construction specification 61 LOOSE ROCK RIPRAP. The rock may be equipment placed.

REFERENCE
Project
Designed _____ Date _____
Checked _____ Date _____
Approved _____ Date _____

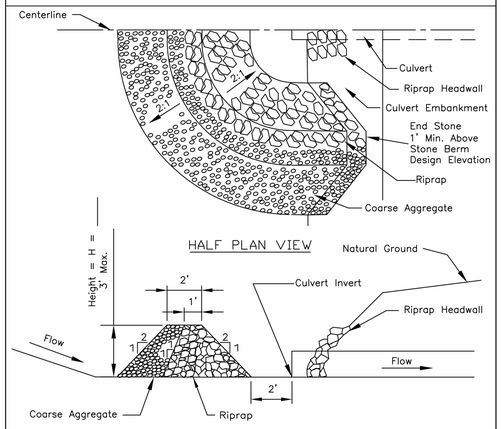
NRCS Natural Resources Conservation Service

STANDARD DWG. NO. IL-610
SHEET 1 OF 1
DATE 9-15-93

05 C904

PERMANENT RIP-RAP AT PIPE OUTLET
NOT TO SCALE

CULVERT INLET PROTECTION - STONE



CENTERLINE CROSS SECTION

Notes:
1. Sediment shall be removed when the sediment has accumulated to one-half the height of the stone berm.
2. Coarse aggregate shall meet one of the following IDOT coarse aggregate gradations, CA-1, CA-2, CA-3 or CA-4.
3. Riprap shall meet IDOT gradation RR-3 or RR-4. Any permanent riprap, such as for the culvert headwall, shall meet IDOT Quality Designation A.
4. Coarse aggregate and riprap shall be placed according to construction specification 25 ROCKFILL using placement Method 1 and Class III compaction.
5. The maximum drainage area to the culvert being protected is 3 acres.
6. See plans for H dimension.
7. Tie the stone berm into the culvert embankment a minimum of 1 foot above the design elevation of the stone berm.

REFERENCE
Project
Designed _____ Date _____
Checked _____ Date _____
Approved _____ Date _____

NRCS Natural Resources Conservation Service

STANDARD DWG. NO. IL-508ST
SHEET 1 OF 1
DATE 1-29-99

06 C904

TEMPORARY STONE CULVERT INLET PROTECTION
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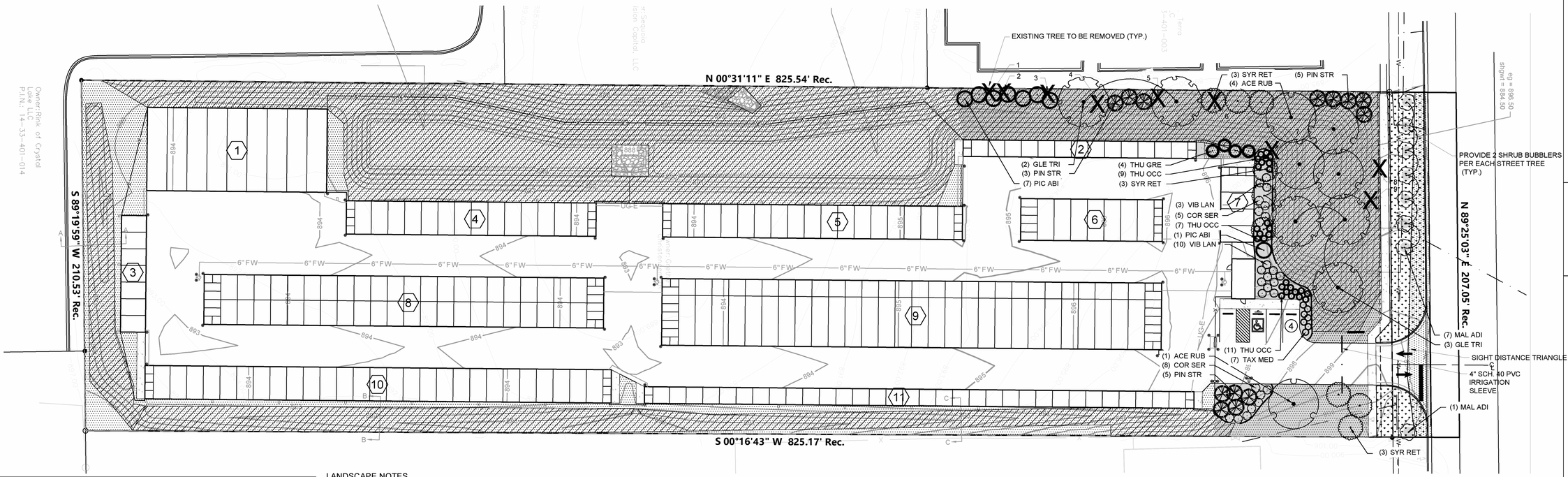
SITE DETAILS

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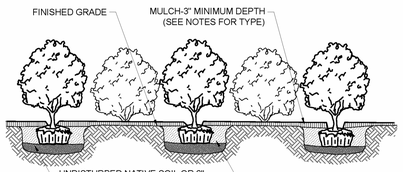
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NOTE:

PLANT MATERIAL SHALL CONFORM TO "THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI 260.1; LATEST EDITION) FOR SIZE FORM AND QUALITY
MYCORRHIZAL INOCULANTS AND SUPER-ABSORBENT MATERIAL ADDED TO PREPARED SOIL BACKFILL AT THE MANUFACTURER'S RECOMMENDED RATE AS PER SPECIFICATIONS



REMOVE ALL SYNTHETIC MATERIAL FROM AROUND ROOTBALL. REMOVE BURLAP AND ROPE FROM TOP ⅓ OF ROOTBALL

SHRUB PLANTING IN BED DETAIL

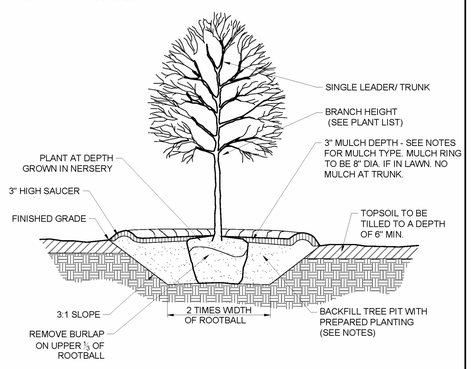
N.T.S.

NOTE:

PLANT MATERIAL SHALL CONFORM TO "THE AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z60.1; LATEST EDITION) FOR SIZE FORM AND QUALITY

MYCORRHIZAL INOCULATES AND SUPER - ABSORBENT MATERIAL ADDED TO TOPSOIL BACKFILL AT THE MANUFACTURER'S RECOMMENDED RATE AS PER SPECIFICATIONS

REMOVE ALL SYNTHETIC MATERIAL FROM AROUND ROOTBALL. REMOVE BURLAP AND ROPE FROM TOP ⅓ OF ROOTBALL



TREE PLANTING DETAIL

N.T.S.

LANDSCAPE NOTES

1. WHEN APPLICABLE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT EXISTING TREES TO REMAIN. NO HEAVY EQUIPMENT SHOULD BE PERMITTED TO OPERATE OR BE STORED, NOR ANY MATERIALS TO BE HANDLED OR STORED, WITHIN THE DRIPLINES OF TREES OUTSIDE THE LIMIT OF GRADING
2. THE QUANTITIES INDICATED ON THE PLANT LIST AND PLAN ARE PROVIDED FOR THE BENEFIT OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN QUANTITY CALCULATIONS AND THE LIABILITY WHICH PERTAINS TO THOSE QUANTITIES AND TO ANY RELATED CONTRACT DOCUMENTS AND/OR PRICE QUOTATIONS. QUESTIONS SHOULD BE DIRECTED TO THE LANDSCAPE ARCHITECT.
3. ALL PLANT MATERIALS SHALL BE NURSERY GROWN, UNLESS OTHERWISE NOTED AND SHALL COMPLY WITH THE AMERICAN STANDARD FOR NURSERY STOCK: ANSI Z-60.1; LATEST EDITION, FOR SIZE AND QUALITY.
4. NO SUBSTITUTIONS AS TO TYPE, SIZE, OR SPACING OF PLANT MATERIALS SPECIFIED ON THIS PLAN MAY BE MADE WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT.
5. THE CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES AND TO PROTECT UTILITIES THAT ARE TO REMAIN. THE CONTRACTOR SHALL REPAIR ANY DAMAGE ACCORDING TO LOCAL STANDARDS AT THE CONTRACTOR'S EXPENSE. COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY.
6. ALL AREAS DISTURBED BY UTILITY TRENCHING, SITE AND BUILDING CONSTRUCTION SHALL BE STABILIZED WITH SEEDING AS SHOWN BY THE PLAN.
7. SOIL USED FOR PLANTING SHALL CONSIST OF 5 PARTS TOPSOIL, 1 PART SAND AND 2 PARTS ORGANIC MATTER, MIXED WITH I POUND OF FERTILIZER PER CUBIC YARD.

A. SAND SHALL BE CLEAN MASONRY SAND.

B. ORGANIC MATTER SHALL BE PEAT MOSS, OR WELL COMPOSTED PINE BARK, OR APPROVED EQUAL AND SHALL BE FINELY GROUND AND FREE OF WEEDS.

C. ALL FERTILIZER SHALL BE 10-10-10 WITH MINOR ELEMENTS. FERTILIZER SHALL HAVE 40-50% OF ITS TOTAL NITROGEN IN A WATER INSOLUBLE FORM.

8. PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO ALL PLANT BEDS PRIOR TO INSTALLATION. TREFLAN OR AN APPROVED EQUAL SHALL BE USED.
9. ALL PLANT BEDS SHALL HAVE A MINIMUM OF 3" DEEP MULCH. MULCH SHALL BE SHREDDED HARDWOOD.
10. IT IS THE LANDSCAPE CONTRACTOR'S RESPONSIBILITY TO CONFIRM MATERIAL QUANTITIES. IN THE EVENT OF A DISCREPANCY, THE QUANTITIES SHOWN ON THE PLAN SHALL TAKE PRECEDENCE OVER QUANTITIES SHOWN ON THE PLANT LIST.
11. PRIOR TO FINAL PAYMENT, THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER WITH COMPLETE WRITTEN INSTRUCTIONS ON PROPER CARE OF ALL SPECIFIED PLANT MATERIALS.
12. THE LANDSCAPE INSTALLATION SHALL BE COORDINATED WITH THE IRRIGATION INSTALLATION WHEN APPLICABLE.
13. THE LANDSCAPE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AWAY FROM STRUCTURES AND TAKE SPECIAL CARE TO INSURE THAT BED PREPARATION DOES NOT INHIBIT DRAINAGE.
14. ALL LAWN AREAS SHALL BE CULTIVATED TO A DEPTH OF 4" PRIOR TO SEEDING. PREPARED LAWN BEDS SHALL BE FREE FROM STONES OVER 2" DIAMETER AND OTHER DELETERIOUS MATERIAL.
15. THE LANDSCAPE CONTRACTOR SHALL RAKE SMOOTH ALL SEED AREAS PRIOR TO INSTALLATION.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BACKFILLING BEHIND THE CURB SO GRADE IS LEVEL WITH TOP OF CURB.
17. SEEDED AREAS SHALL BE CONSIDERED ACCEPTABLE WHEN FULL COVERAGE OF THE PERMANENT TURFGRASS SPECIES IS ESTABLISHED.
18. CUT AWAY ROPES OR WIRES FROM B&B PLANTS. PULL BACK BURLAP FROM TOP OF ROOT BALL. DO NOT ALLOW BURLAP TO BE EXPOSED AT SURFACE. TOTALLY REMOVE BURLAP IF IT IS SYNTHETIC.
19. IF CONTAINER GROWN PLANTS SHOW SIGNS OF BEING ROOT BOUND, SCORE ROOTS VERTICALLY.
20. ALL PLANT MATERIAL SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
21. ALL REPLACEMENTS SHALL BE OF THE SAME TYPE, SIZE, AND QUALITY AS SPECIFIED ON THE PLANT LIST, UNLESS APPROVED OTHERWISE IN WRITING BY THE LANDSCAPE ARCHITECT.
22. ANY MATERIAL THAT IS DEEMED TO BE 25% DEAD OR MORE SHALL BE CONSIDERED DEAD, AND MUST BE REPLACED AT NO CHARGE. A TREE IS CONSIDERED DEAD WHEN THE MAIN LEADER HAS DIED BACK, OR MORE THAN 25% OF THE CROWN IS DEAD.
23. REPLACEMENTS SHALL BE MADE DURING THE NEXT PLANTING SEASON UNLESS THE LANDSCAPE CONTRACTOR AGREES TO AN EARLIER DATE.
    PLANTING DATES
    SPRING: MARCH 15 - MAY 15
    FALL: OCTOBER 1 - NOVEMBER 30
24. THE LANDSCAPE CONTRACTOR WILL NOT BE RESPONSIBLE FOR PLANT MATERIAL THAT HAS BEEN DAMAGED BY VANDALISM, FIRE, RELOCATION, WILDLIFE, THEFT, OR OTHER ACTIVITIES BEYOND THE LANDSCAPE CONTRACTOR'S CONTROL.

PLANT SCHEDULE

CODE	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	QTY	REMARKS
TREES						
ACE RUB	Acer rubrum	Redr Maple	B & B	3"Cal	5	6' clear trunk
GLE TRI	Gleditsia triacanthos inermis 'Skycole'	Skyline® Honey Locust	B & B	3"Cal	5	6' clear trunk
MAL ADI	Malus x 'Adirondack'	Adirondack Crabapple	B & B	2.5"Cal	8	5' clear trunk
PIC ABI	Picea abies	Norway Spruce	B & B	6` ht.	8	full to base
PIN STR	Pinus strobus	White Pine	B & B	6` ht.	13	full to base
SYR RET	Syringa reticulata 'Ivory Silk'	Ivory Silk Japanese Tree Lilac	B & B	2.5"Cal	9	5' single clear trunk
THU GRE	Thuja x 'Green Giant'	Green Giant Arborvitae	B & B	6` ht.	4	full to base
SHRUBS						
COR SER	Cornus sanguinea 'Midwinter Fire'	Midwinter Fire Bloodtwig Dogwood	5 gal	24" ht.	13	full
TAX MED	Taxus x media 'Densiformis'	Dense Anglo-Japanese Yew	B & B	24" spr.	7	full, clay grown
THU OCC	Thuja occidentalis 'Little Giant'	Little Giant Arborvitae	5 gal	18" ht.	27	full
VIB LAN	Viburnum lantana 'Mohican'	Mohican Wayfaring Tree	5 gal	24" ht.	13	full

LANDSCAPE CALCULATIONS

207 L.F. FRONTAGE

STREET TREES REQUIRED @ 1/40 L.F.	6
STREET TREES PROVIDED	8
FRONTAGE PLANTINGS REQUIRED	
TREES @ 1/40 L.F.	6
SHRUBS @ 10/40 L.F.	60
FRONTAGE PLANTINGS PROVIDED	
9 TREES	
60 SHRUBS	

NOTE: UNDERSTORY TREES USED FOR STREET PLANTING DUE TO OVERHEAD WIRES.

EXISTING TREES TO BE REMOVED

1 - 48" ELM
2 - 30" ELM
3 - 50" WALNUT
4 - 24" WALNUT
5 - 36" OAK
6 - 48" MAPLE
7 - 58" MAPLE
8 - 22" WALNUT
9 - 30" WALNUT

LEGEND

IRRIGATION COVERAGE AREA

AREA TO BE SEEDED WITH 0.25 LBS. CANADA WILD RYE, 1 LB. PERENNIAL RYE, 0.75 LBS. ALSIKE CLOVER, 0.25 LBS. ILLINOIS BUNDLE FLOWER, 0.5 LBS. LITTLE BLUESTEM, 0.5 LBS. SIDE OATS GRAMA, 0.75 LBS. FULTS SALT GRASS, 1.25 LBS. SPRING OATS AND 0.25 LBS. CODY BUFFALOGRASS PER 1,000 S.F. (IDOT CLASS 3)

AREA TO BE SEEDED WITH 2.5 LBS. INFERNO TALL FESCUE, 1 LB PERENNIAL RYE, 1 LB. CREEPING RED FESCUE AND 0.5 LBS. RED TOP PER 1,000 S.F.(IDOT CLASS 2)

AREA TO BE STABILIZED WITH NORTH AMERICAN GREEN SC-150BN EROSION CONTROL FABRIC IN ADDITION TO SEEDING

CONTRACTOR SHALL PROVIDE A FULLY AUTOMATIC IRRIGATION SYSTEM FOR THE AREAS SHOWN BY THE PLAN

NORTH

30' 0 30' 60'
GRAPHIC SCALE

Gresham Smith
GreshamSmith.com
222 Second Avenue South
Suite 1400
Nashville, TN 37201
615.770.8100

STORAGE OF AMERICA

439 E TERRA COTTA AVENUE
CRYSTAL LAKE, IL 60014

LICENSED LANDSCAPE ARCHITECT
YEA LIM CHOI
157-001797
STATE OF ILLINOIS

03/28/2024

Kate Choi

Revision

No.	Date	Description
1	03.28.2024	CITY COMMENTS

LANDSCAPE PLAN

L200

46724.01
12.06.2023

This Line Is 3 Inches When Printed Full Size

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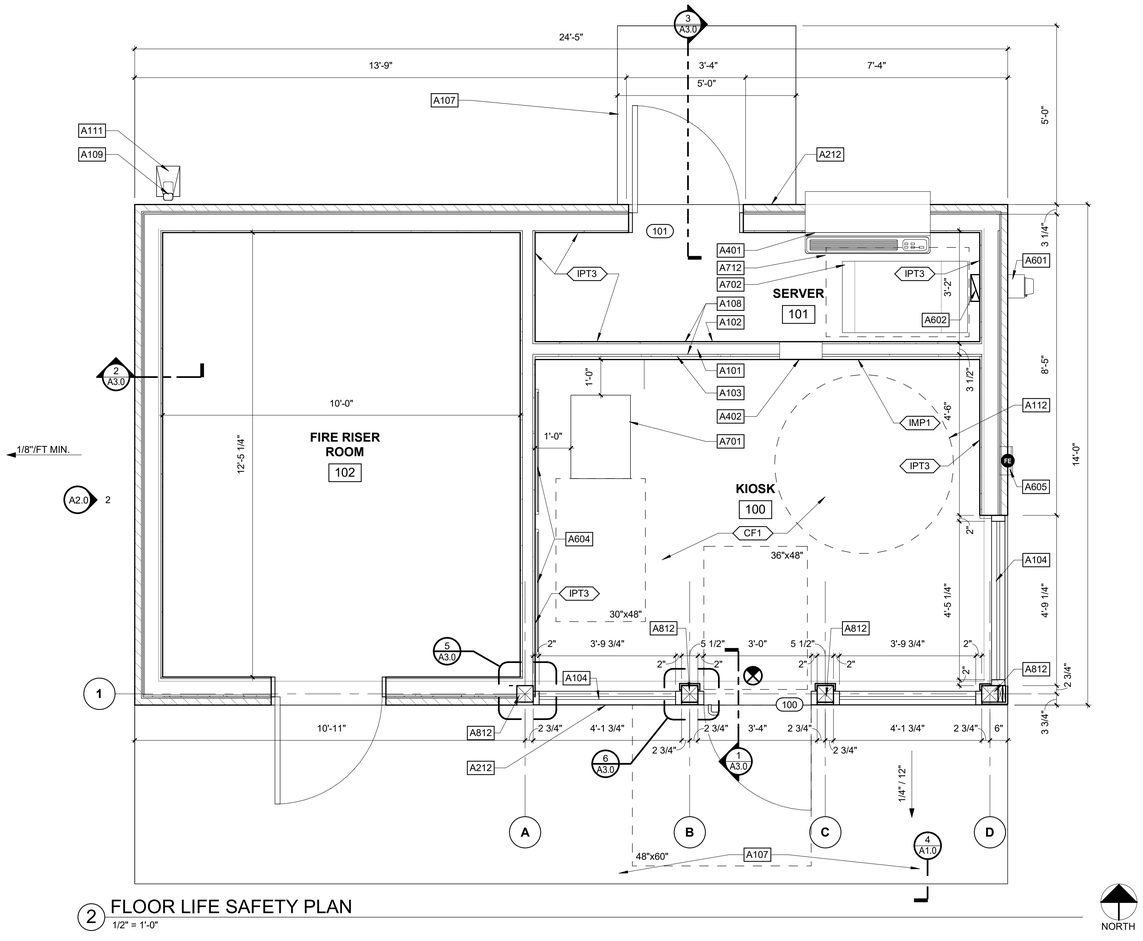
GENERAL PROJECT NOTES

1. ALL EMERGENCY LIGHTS TO HAVE CODE COMPLIANT BATTERY BACKUP.
2. ALL DIMENSIONS ARE TO FACE OF STUD UNLESS NOTED OTHERWISE.
3. SEE ROOM FINISH SCHEDULE ON SHEET A3.0

KEYNOTES ON SHEET

KEYNOTE QUANTITIES INDICATE THE NUMBER OF TIMES A KEYNOTE OCCURS AND IS NOT INTENDED TO BE A QUANTITY FOR THE ITEM NOTED.

MARK	QTY	NOTE
A101	1	2x4 STUDS AT 16" ON CENTER
A102	1	MOUNT PHONE/DATA EQUIPMENT IN THIS AREA DIRECTLY TO PLYWOOD FINISH
A103	1	PREFINISHED WHITE CORRUGATED METAL PANELS ON PUBLIC SIDE OF WALL
A104	2	PREFINISHED THERMALLY BROKEN ALUMINUM STOREFRONT WITH 1" LOW-E INSULATED GLAZING - CLEAR ANODIZED OR BLACK DEPENDING ON AVAILABILITY - PROVIDE SHOP DRAWINGS FOR ARCHITECT OF RECORD REVIEW
A107	2	CONCRETE PAD/WALK TO SLOPE AWAY FROM BUILDING 1:48 MAXIMUM
A108	1	3/4" PLYWOOD FINISH - PAINT - SEE FINISH SCHEDULE
A109	1	PREFINISHED ALUMINUM GUTTER AND DOWNSPOUT - COLOR WHITE
A111	1	PRECAST CONCRETE SPLASH BLOCK
A112	1	5'-0" ADA TURNING CIRCLE
A212	2	1/2" EXPANSION MATERIAL WITH TRAFFIC SEALANT - TYPICAL
A401	1	THRU-WALL PACKAGED TERMINAL AIR CONDITIONER - SEE MECHANICAL DRAWINGS
A402	1	THRU-WALL TRANSFER GRILLE - SEE MECHANICAL DRAWINGS
A601	1	ELECTRIC METER AND WEATHERHEAD - SEE ELECTRICAL DRAWINGS - DO NOT PAINT
A602	1	ELECTRIC PANEL - SEE ELECTRICAL DRAWINGS
A604	1	47" FLAT SCREEN AT 4'-4" ABOVE FINISHED FLOOR
A605	1	FIRE EXTINGUISHER IN RECESSED WEATHER PROOF CABINET
A701	1	STORAGE RENTAL KIOSK BY OWNER - VERIFY POWER/DATA REQUIREMENTS - SEE ELECTRICAL DRAWINGS
A702	1	SERVER RACK BY OWNER
A712	1	FIBEROPTIC VAULT - COORDINATE FINAL LOCATION WITH OWNER - TOP TO FINISH FLUSH AT FLOOR SLAB
A812	4	6x6 #2 SOUTHERN YELLOW PINE WOOD COLUMN WITH SIMPSON ABU66Z POST BASE. - 5/8" THREADED ROD DRILLED AND EPOXIED 4" MINIMUM EMBEDMENT
TOTAL: 26		



2 FLOOR LIFE SAFETY PLAN
1/2" = 1'-0"

HENDERSON ASSOCIATES ARCHITECTS

309 N. MAIN STREET
EDWARDSVILLE, IL
62025

618.656.6618
fax 618.656.3899

PROFESSIONAL SEAL

NOT FOR CONSTRUCTION

PROJECT TITLE

A NEW KIOSK & I.T. BUILDING FOR

STORAGE OF AMERICA

1234 THAT ROAD, CRYSTAL LAKE, IL 00000

REVISIONS

##	DESCRIPTION	DATE

PROJECT #	202354
DRAWN BY	JB
CHECKED BY	EMB
ISSUE DATE	10/24/2023

SHEET NAME:

FLOOR PLAN

SHEET NUMBER:

A1.1

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STORMWATER QUALITY AND QUANTITY CALCULATIONS FOR

Storage of America

439 East Terra Cotta Avenue
Crystal Lake, Illinois 40014

PROJECT # 46724.01

December 6, 2023
Revised March 28, 2024

Gresham Smith



04/02/2024

222 SECOND AVENUE SOUTH, SUITE 1400
NASHVILLE, TN 37201
PHONE: 615-770-8100

CONTACT: Nicholas Coates, E.I.
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EMAIL: nicholas.coates@greshamsmith.com

Gresham Smith

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Smith

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PROJECT NARRATIVE

Project Description

The proposed project is the construction of twelve (12) storage buildings and one office building with a total building square footage of 44,850 with parking and utilities. The 3.77 acre site is located at 439 E Terra Cotta Avenue, Crystal Lake, Illinois. Refer to Appendix A for a vicinity map of the site's location.

Soil Conditions

The USDA Web Soil Survey soils report indicated the on-site soils consist of 71.8% 369A (Waupecan silt loam, 0 to 2 percent slopes) – Hydrologic Soil Group B, 21.7% 369B (Waupecan silt loam, 2 to 4 percent slopes) – Hydrologic Soil Group B, and 6.6% 369B (Griswold loam, 4 to 6 percent slopes, eroded) – Hydrologic Soil Group B. For the USDA Web Soil Survey report information, refer to Appendix D.

Soil investigations were conducted to determine the site's suitability for a proposed infiltration facility (Appendix H). Three bore samples were taken in the proposed infiltration pond area (SWM-1, SWM-2, and SWM-3) and assigned an estimated permeability range based on depth below existing grade. A depth range and corresponding permeability rate range for each bore sample was selected based on proposed grade at each sample location. Then, a design permeability rate for the pond was selected based on the average of the lower end of the corresponding rate ranges for SWM-1, SWM-2, and SWM-3.

Existing Stormwater Conditions

The project site currently sheet flows stormwater toward the West of the site. The site is currently partly wooded and row crop in good condition. There are currently no stormwater management practices in place.

See Appendix B for the Pre-Development Drainage Map Exhibit.

Proposed Stormwater Conditions

The full buildout of the proposed development will include construction of 11 storage buildings, new utility installation, site paving, landscaping, and infiltration pond area. The pond was designed to retain the 2 year through the 100 year storm events and reduce total site peak flows to less than pre-development peak flows, and was sized per the Bulletin 75 Nomograph (Appendix F). The site was broken into two sections: area to the infiltration pond for stormwater management and pond bypass area. The majority of impervious runoff will be routed to the

infiltration pond and discharge in a manner consistent with the existing drainage pattern. Reference Appendix B for the pre and post developed drainage map and Appendix C for the Hydraflow Hydrographs reports. Drainage from the bypass portion of the property will discharge in a manner consistent with the existing drainage pattern.

A storm sewer analysis was performed to confirm that the proposed storm sewer network can convey the 10-year, 5-minute storm, and to confirm that there will be no greater than nine (9) inches of ponding in the onsite parking lot for the 100-year, 24-hour storm. The Rainfall Depth-Duration Frequency Tables for McHenry County (Appendix 4 of the Crystal Lake Stormwater Ordinance) were used for all hydrologic and hydraulic modeling. Rainfall was only given in depth, not intensity, so the design rainfall intensity values were calculated from the rainfall depth values and their corresponding durations in the above referenced document. Runoff coefficients for all calculations were selected from Table 5-2 of the MWRD Technical Guidance Manual. Refer to Appendix F for the Hydraflow Storm Sewers reports.

CLSO Runoff Volume Reduction Hierarchy Narrative

The project meets the Runoff Volume Reduction Hierarchy (§ 595-26F) of the Crystal Lake Stormwater Ordinance (CLSO) in multiple ways. The natural infiltration characteristics of the site are preserved with the primary stormwater management device being an infiltration pond. Runoff that bypasses the infiltration pond is conveyed in a manner consistent with existing drainageways. On the boundaries of the property, stormwater is conveyed through open vegetated channels. Water quality is provided through the use of grassed swales, area inlet containment structures, and the infiltration basin.

Stormwater Quality

The proposed stormwater management treats the stormwater runoff by grassed swales, area inlet containment structures, and an infiltration basin. The requirements of §595-26.G of the CLSO were referenced for the design of stormwater quality measures.

RETENTION

Bypass Flows

A portion of stormwater on the site bypasses the infiltration pond, however, total site peak runoff including bypass and pond discharge is less than existing peak runoff for the 2 year through the 100 year storm events. Offsite drainage from the East will be routed around the pond to avoid ponding at the Eastern property boundary. The headwall on the eastern property boundary will convey off-site runoff through the site, and has been designed to convey the 100-year storm. Refer to Appendix F for the Hydraflow Storm Sewers analysis for the off-site bypass storm sewer.

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Stormwater Retention

The existing pre-developed weighted Curve Number is CN = 68. The proposed post-developed weighted Curve Number is CN = 86. Thus, additional stormwater detention is required. The weighted Curve Numbers have been used in the Hydraflow Hydragraph calculations. See Curve Number and Pond Calculation Summary tables below.

The infiltration pond was sized per the Bulletin 75 Rainfall Data Nomograph (Appendix F) assuming a 0.15 cfs/ac allowable release rate per CLSO § 595-26E(3)(a)[1]. The calculated required detention volume is 1.370 ac-ft, or 59,677 cu-ft.The provided total storage volume of the pond is 81,293 cu-ft (Appendix C, Pond Report, Page 10). The provided maximum release rate of the pond is 0.

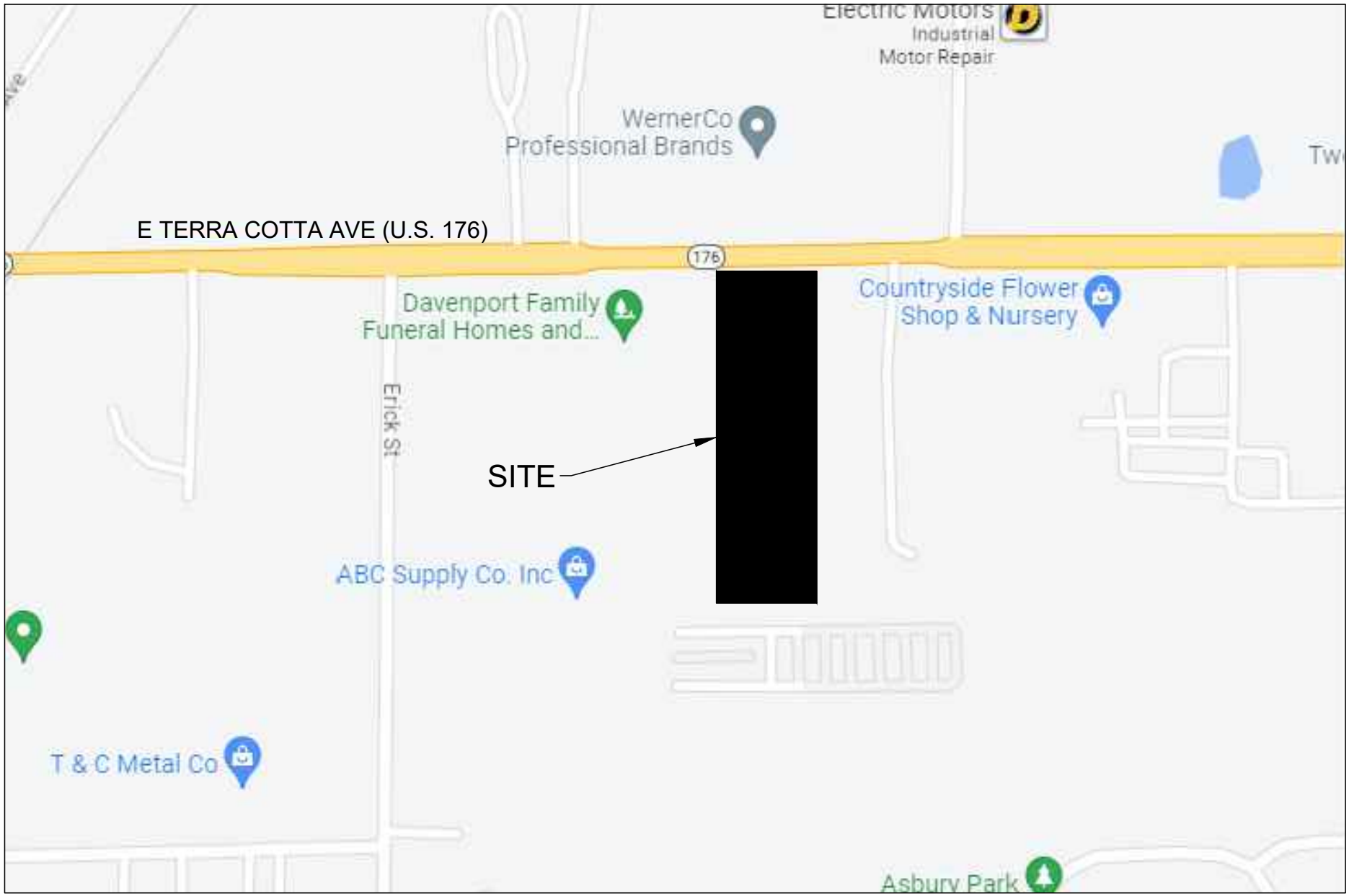
Curve Numbers - Hydrologic Soil Group B					
Land Use	Curve Number	Predeveloped Acres	Post Developed Acres	Bypass Acres	To Pond
Impervious	98	0.00	2.22	0.21	2.01
Semi-Pervious (Gravel)	85	0.00	0.00	0.00	0.00
Pervious (Woodland)	60	0.54	0.00	0.00	0.00
Pervious (Open Space)	69	3.22	1.54	0.45	1.10
	Total Area	3.77	3.77	0.65	3.11
Composite Curve Number		68	86	78	88

POND CALCULATION SUMMARY

	24-HOUR RAINFALL	PRE-DEVELOPED RUNOFF	TOTAL POST-DEVELOPED RUNOFF (WITHOUT RETENTION)	POST-DEVELOPED RUNOFF (WITH RETENTION POND + BYPASS)	POND WATER SURFACE ELEVATION	POND STORAGE VOLUME	FREEBOARD	TIME TO DEWATER
RECURRENCE INTERVAL	(IN.)	(C.F.S.)	(C.F.S.)	(C.F.S.)	(FT.)	(CU. FT.)	(FT.)	(HOURS)
1-YEAR STORM	2.77	2.483	10.210	1.168	890.09	9,671	3.41	6.54
2-YEAR STORM	3.34	4.315	13.470	1.669	890.38	13,274	3.12	8.28
5-YEAR STORM	4.30	7.868	19.100	2.566	890.90	19,820	2.60	11.40
10-YEAR STORM	5.15	11.350	24.140	3.392	891.31	26,054	2.19	13.86
25-YEAR STORM	6.45	17.090	31.820	4.689	891.94	36,161	1.56	17.64
50-YEAR STORM	7.50	22.000	38.000	5.758	892.35	44,478	1.15	20.10
100-YEAR STORM	8.57	27.130	44.270	6.850	892.38	53,015	1.12	20.28
Top of Berm Elevation (ft):		893.50						
Design Infiltration Rate (in/hr):		2.00						

The detailed Hydraflow Hydrograph Pond Routing Calculations are provided in Appendix C.

APPENDIX A: VICINITY MAP



VICINITY MAP

NOT TO SCALE

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APPENDIX B: DRAINAGE MAP EXHIBITS

Pre-Developed Drainage Map Exhibit

Post-Developed Drainage Map Exhibit

LEGEND

PERVIOUS (OPEN SPACE)

PERVIOUS (WOODED)

IMPERVIOUS

NORTH

60' 0 60' 120'

GRAPHIC SCALE

PROJECT AREA IN EXISTING CONDITONS

TIME OF CONCENTRATION FLOW PATH
Tc = 11.10 MINUTES

OFFSITE RUNOFF AREA TO BE
ROUTED AROUND THE
PROPOSED INFILTRATION POND

N 00°31'11" E 825.54' Rec.

S 89°19'59" W 210.53' Rec.

14-33-401-006
Unsubdivided
Owner: Sequoia Precision Capital, LLC

14-33-401-003
Unsubdivided
172,298 Sq. Feet
3.96 Acres
Owner: Grethe Christensen TR

Terra Cotta Avenue
66' Public Right of Way
Center Line of Right of Way
Basis of Bearings
N 89°25'03" E 207.05' Rec.

EXISTING CONDITIONS

LEGEND

IMPERVIOUS

PERVIOUS (OPEN SPACE)

10' WIDE EMERGENCY SPILLWAY
ELEV. = 892.50

PROJECT AREA IN
PROPOSED CONDITIONS

RED DASHED LINE REPRESENTS
DRAINAGE AREA TO THE
PROPOSED INFILTRATION POND
CN = 88
DRAINAGE AREA = 3.11 AC.

PROPOSED INFILTRATION POND
100-YEAR W.S.E. = 892.38

OFF-SITE RUN-ON AREA TO BE
ROUTED AROUND THE
PROPOSED INFILTRATION POND

PROPOSED SITE BYPASS

NORTH

60' 0 60' 120'

GRAPHIC SCALE

Terra Cotta Avenue

PROPOSED CONDITIONS

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APPENDIX C: RETENTION

Hydraflow Hydrograph Pond Routing Calculations – 2 through 100 Year Storm

Hydraflow Table of Contents

4672401 pond routing infiltration.gpw

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024 Wednesday, 03 / 27 / 2024

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100 - Year

Summary Report..... 3

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TR-55 Tc Worksheet..... 5

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Hydrograph No. 5, SCS Runoff, to pond..... 7

Hydrograph No. 7, SCS Runoff, bypass..... 8

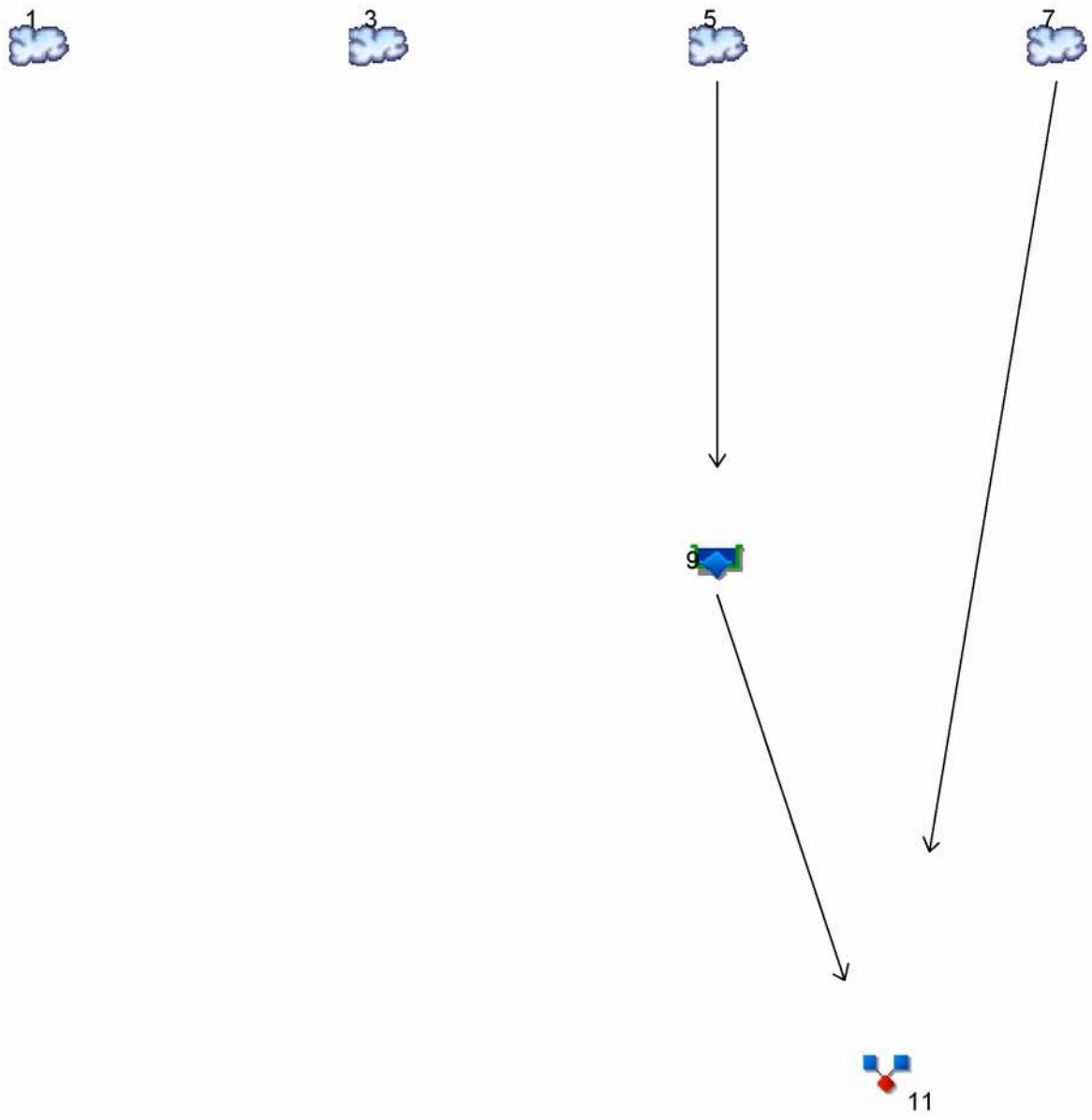
Hydrograph No. 9, Reservoir, route to pond..... 9

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Watershed Model Schematic



Legend

Hyd.	Origin	Description
1	SCS Runoff	existing conditions
3	SCS Runoff	proposed conditions
5	SCS Runoff	to pond
7	SCS Runoff	bypass
9	Reservoir	route to pond
11	Combine	total combined runoff

Hydrograph Return Period Recap

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	2.483	4.315	-------	7.868	11.35	17.09	22.00	27.13	existing conditions
3	SCS Runoff	------	10.21	13.47	-------	19.10	24.14	31.82	38.00	44.27	proposed conditions
5	SCS Runoff	------	9.173	11.92	-------	16.61	20.76	27.07	32.14	37.27	to pond
7	SCS Runoff	------	1.168	1.669	-------	2.566	3.392	4.689	5.758	6.850	bypass
9	Reservoir	5	0.000	0.000	-------	0.000	0.000	0.000	0.000	0.000	route to pond
11	Combine	7, 9,	1.168	1.669	-------	2.566	3.392	4.689	5.758	6.850	total combined runoff

Hydrograph Summary Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2024

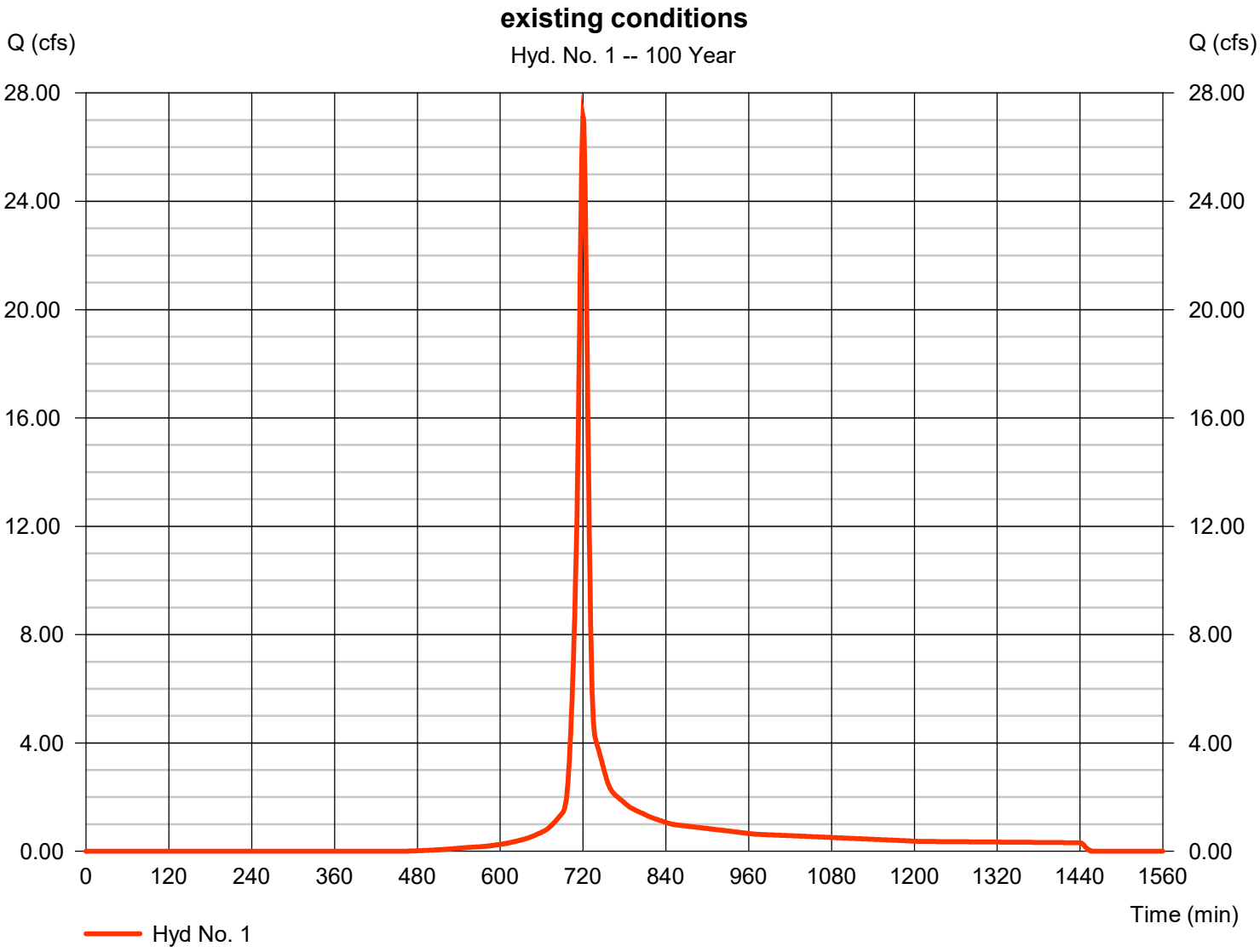
Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to Peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph Description
1	SCS Runoff	27.13	1	720	65,724	------	------	------	existing conditions
3	SCS Runoff	44.27	1	717	97,166	------	------	------	proposed conditions
5	SCS Runoff	37.27	1	717	82,963	------	------	------	to pond
7	SCS Runoff	6.850	1	717	14,405	------	------	------	bypass
9	Reservoir	0.000	1	2235	0	5	892.38	53,015	route to pond
11	Combine	6.850	1	717	14,405	7, 9,	------	------	total combined runoff

Hydrograph Report

Hyd. No. 1

existing conditions

Hydrograph type	=	SCS Runoff	Peak discharge	=	27.13 cfs
Storm frequency	=	100 yrs	Time to peak	=	720 min
Time interval	=	1 min	Hyd. volume	=	65,724 cuft
Drainage area	=	3.770 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	TR55	Time of conc. (Tc)	=	11.10 min
Total precip.	=	8.57 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



TR55 Tc Worksheet

Hyd. No. 1

existing conditions

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.150		0.011		0.011		
Flow length (ft)	= 100.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 2.90		0.00		0.00		
Land slope (%)	= 3.00		0.00		0.00		
Travel Time (min)	**= 8.75**	**+**	**0.00**	**+**	**0.00**	**=**	**8.75**
Shallow Concentrated Flow							
Flow length (ft)	= 400.00		0.00		0.00		
Watercourse slope (%)	= 3.00		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	=2.79		0.00		0.00		
Travel Time (min)	**= 2.39**	**+**	**0.00**	**+**	**0.00**	**=**	**2.39**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	=0.00						
			0.00				
					0.00		
Flow length (ft)	({0})0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

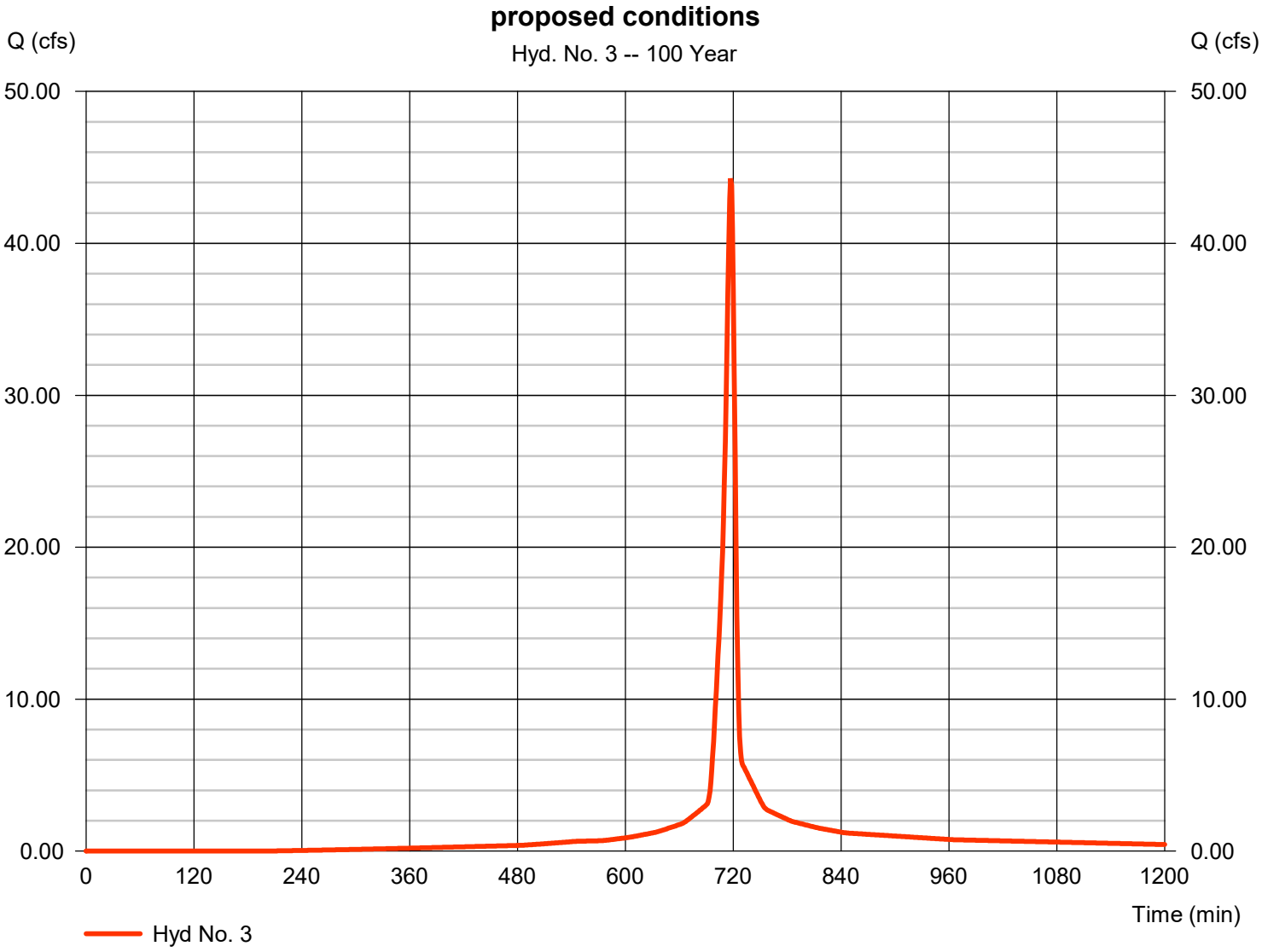
Total Travel Time, Tc ..... 11.10 min

Hydrograph Report

Hyd. No. 3

proposed conditions

Hydrograph type	=	SCS Runoff	Peak discharge	=	44.27 cfs
Storm frequency	=	100 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	97,166 cuft
Drainage area	=	3.770 ac	Curve number	=	86
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	8.57 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

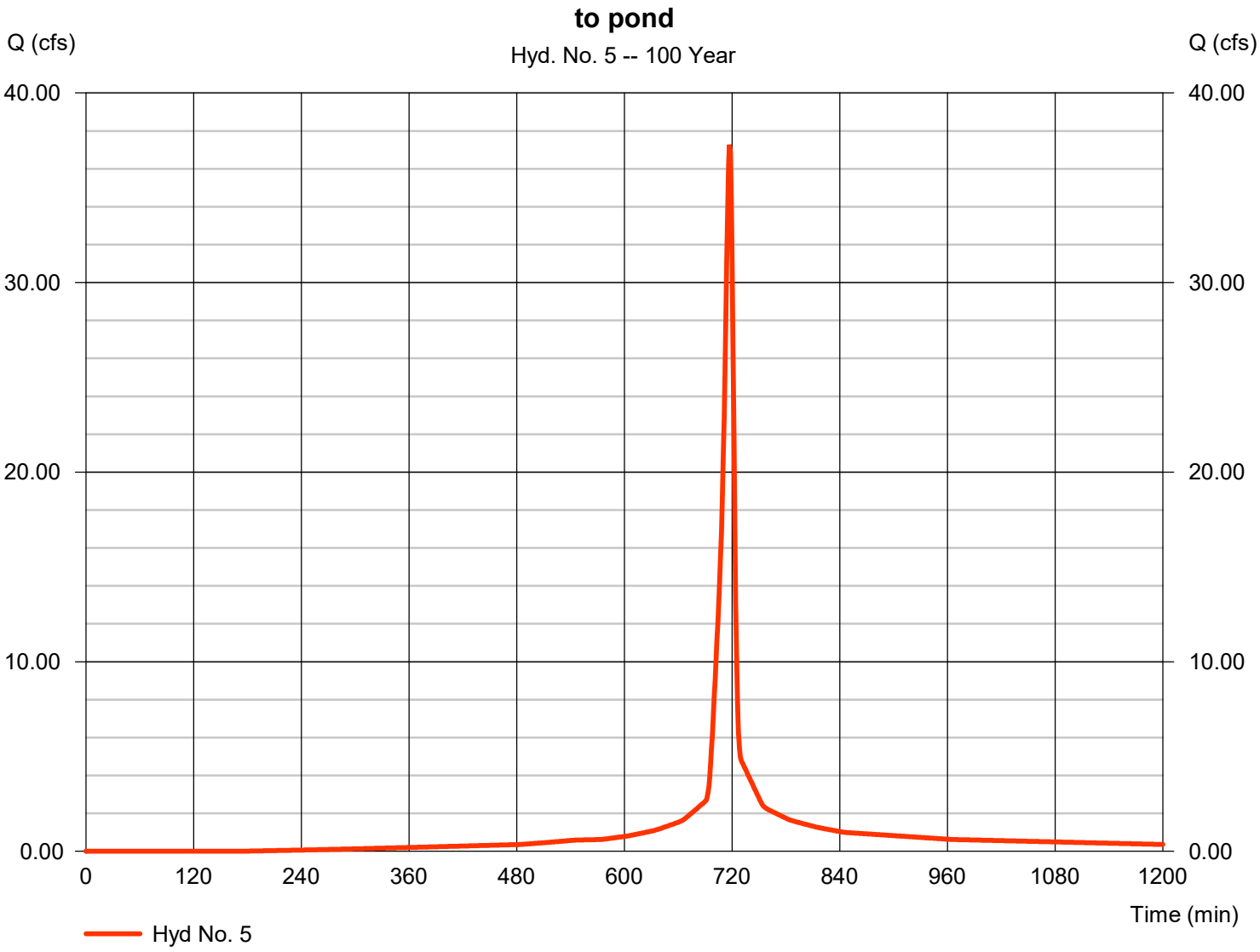


Hydrograph Report

Hyd. No. 5

to pond

Hydrograph type	=	SCS Runoff	Peak discharge	=	37.27 cfs
Storm frequency	=	100 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	82,963 cuft
Drainage area	=	3.110 ac	Curve number	=	88
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	8.57 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484

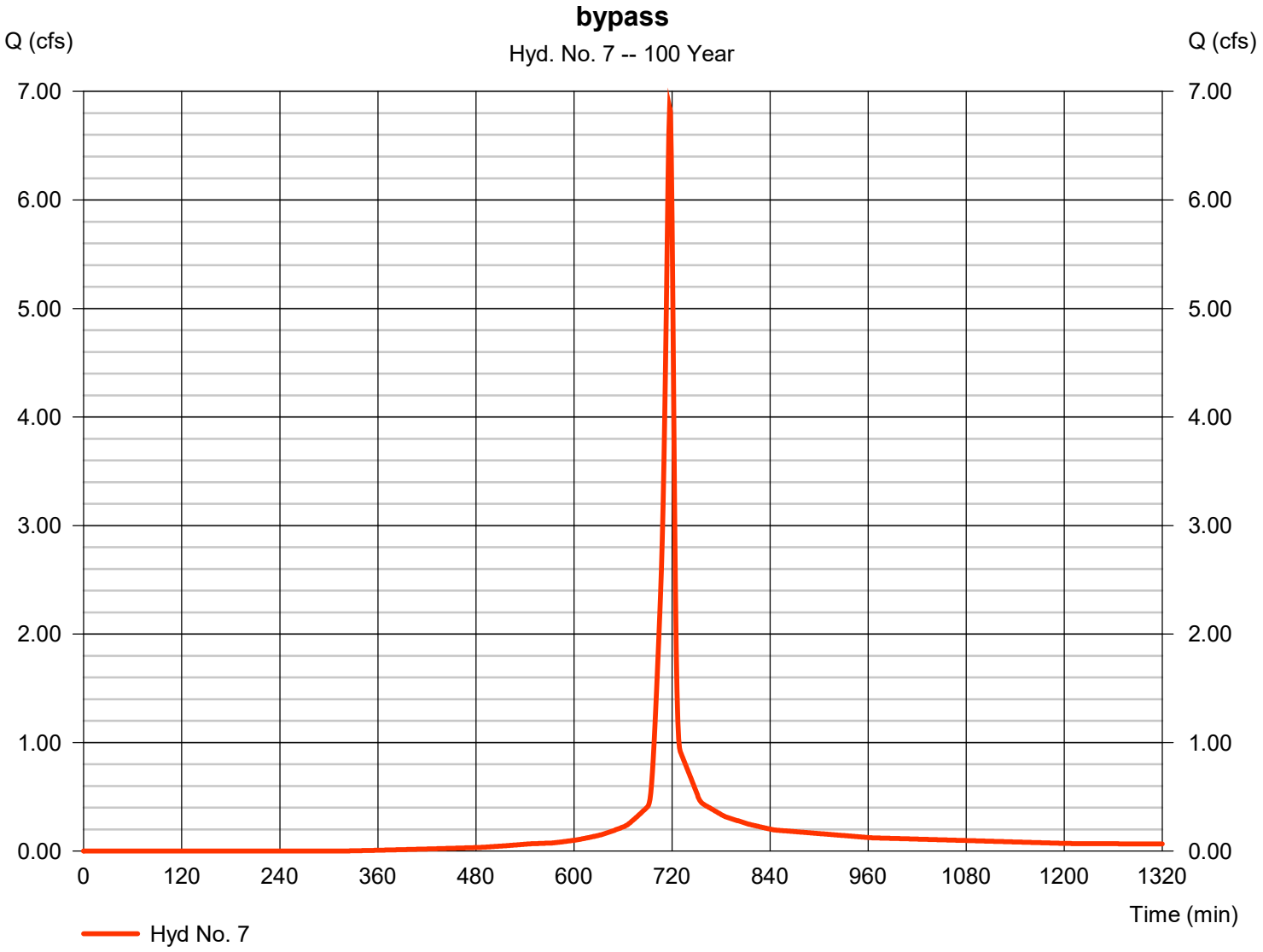


Hydrograph Report

Hyd. No. 7

bypass

Hydrograph type	=	SCS Runoff	Peak discharge	=	6.850 cfs
Storm frequency	=	100 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	14,405 cuft
Drainage area	=	0.650 ac	Curve number	=	78
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	User	Time of conc. (Tc)	=	5.00 min
Total precip.	=	8.57 in	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



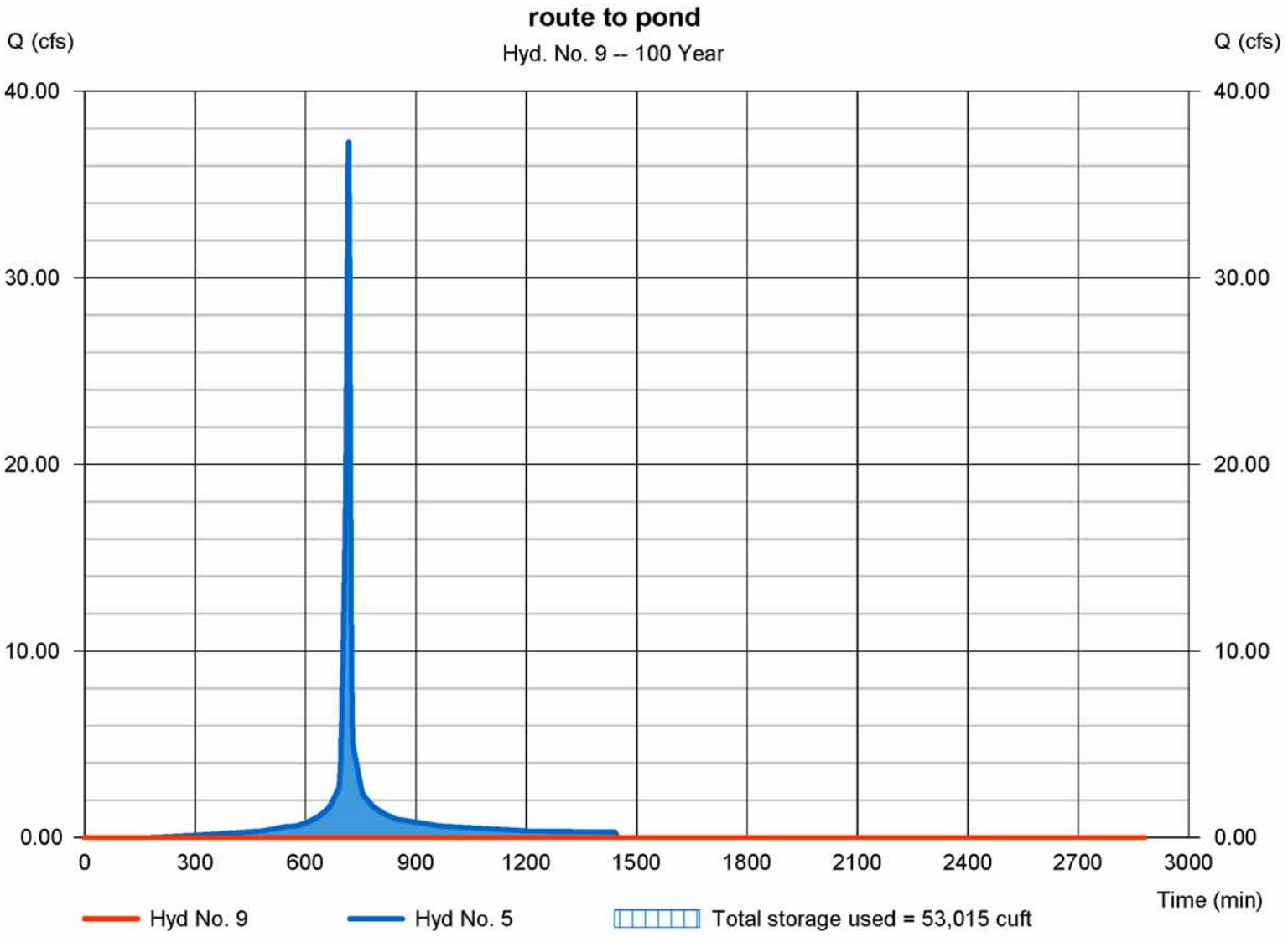
Hydrograph Report

Hyd. No. 9

route to pond

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 100 yrs	Time to peak	= 2235 min
Time interval	= 1 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 5 - to pond	Max. Elevation	= 892.38 ft
Reservoir name	= infiltration pond	Max. Storage	= 53,015 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond No. 1 - infiltration pond

Pond Data

Contours -User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 887.00 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	887.00	65	0	0
1.00	888.00	160	109	109
1.50	888.50	4,086	842	951
2.00	889.00	4,935	2,252	3,203
2.50	889.50	3,366	2,063	5,266
3.00	890.00	10,711	3,347	8,612
4.00	891.00	14,230	12,428	21,040
5.50	892.00	18,190	24,252	45,292
6.50	893.00	22,140	20,131	65,422
7.00	893.50	24,135	11,564	76,986

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	Inactive	Inactive	Inactive	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 1	1	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 10.00	Inactive	Inactive	0.00
Crest El. (ft)	= 892.50	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= Ciplti	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 2.000 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
0.00	0	887.00	---	---	---	---	0.00	---	---	---	0.000	---	0.000
0.10	11	887.10	---	---	---	---	0.00	---	---	---	0.001	---	0.001
0.20	22	887.20	---	---	---	---	0.00	---	---	---	0.001	---	0.001
0.30	33	887.30	---	---	---	---	0.00	---	---	---	0.002	---	0.002
0.40	44	887.40	---	---	---	---	0.00	---	---	---	0.003	---	0.003
0.50	54	887.50	---	---	---	---	0.00	---	---	---	0.004	---	0.004
0.60	65	887.60	---	---	---	---	0.00	---	---	---	0.004	---	0.004
0.70	76	887.70	---	---	---	---	0.00	---	---	---	0.005	---	0.005
0.80	87	887.80	---	---	---	---	0.00	---	---	---	0.006	---	0.006
0.90	98	887.90	---	---	---	---	0.00	---	---	---	0.007	---	0.007
1.00	109	888.00	---	---	---	---	0.00	---	---	---	0.007	---	0.007
1.05	193	888.05	---	---	---	---	0.00	---	---	---	0.026	---	0.026
1.10	277	888.10	---	---	---	---	0.00	---	---	---	0.044	---	0.044
1.15	362	888.15	---	---	---	---	0.00	---	---	---	0.062	---	0.062
1.20	446	888.20	---	---	---	---	0.00	---	---	---	0.080	---	0.080
1.25	530	888.25	---	---	---	---	0.00	---	---	---	0.098	---	0.098
1.30	614	888.30	---	---	---	---	0.00	---	---	---	0.116	---	0.116
1.35	699	888.35	---	---	---	---	0.00	---	---	---	0.135	---	0.135
1.40	783	888.40	---	---	---	---	0.00	---	---	---	0.153	---	0.153
1.45	867	888.45	---	---	---	---	0.00	---	---	---	0.171	---	0.171
1.50	951	888.50	---	---	---	---	0.00	---	---	---	0.189	---	0.189
1.55	1,176	888.55	---	---	---	---	0.00	---	---	---	0.193	---	0.193
1.60	1,402	888.60	---	---	---	---	0.00	---	---	---	0.197	---	0.197
1.65	1,627	888.65	---	---	---	---	0.00	---	---	---	0.201	---	0.201
1.70	1,852	888.70	---	---	---	---	0.00	---	---	---	0.205	---	0.205
1.75	2,077	888.75	---	---	---	---	0.00	---	---	---	0.209	---	0.209
1.80	2,302	888.80	---	---	---	---	0.00	---	---	---	0.213	---	0.213
1.85	2,528	888.85	---	---	---	---	0.00	---	---	---	0.217	---	0.217
1.90	2,753	888.90	---	---	---	---	0.00	---	---	---	0.221	---	0.221
1.95	2,978	888.95	---	---	---	---	0.00	---	---	---	0.225	---	0.225
2.00	3,203	889.00	---	---	---	---	0.00	---	---	---	0.228	---	0.228
2.05	3,409	889.05	---	---	---	---	0.00	---	---	---	0.221	---	0.221
2.10	3,616	889.10	---	---	---	---	0.00	---	---	---	0.214	---	0.214

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infiltration pond

Stage / Storage / Discharge Table

Stage ft	Storage cuft	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PrfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	User cfs	Total cfs
2.15	3,822	889.15	---	---	---	---	0.00	---	---	---	0.207	---	0.207
2.20	4,028	889.20	---	---	---	---	0.00	---	---	---	0.199	---	0.199
2.25	4,234	889.25	---	---	---	---	0.00	---	---	---	0.192	---	0.192
2.30	4,441	889.30	---	---	---	---	0.00	---	---	---	0.185	---	0.185
2.35	4,647	889.35	---	---	---	---	0.00	---	---	---	0.178	---	0.178
2.40	4,853	889.40	---	---	---	---	0.00	---	---	---	0.170	---	0.170
2.45	5,059	889.45	---	---	---	---	0.00	---	---	---	0.163	---	0.163
2.50	5,266	889.50	---	---	---	---	0.00	---	---	---	0.156	---	0.156
2.55	5,600	889.55	---	---	---	---	0.00	---	---	---	0.190	---	0.190
2.60	5,935	889.60	---	---	---	---	0.00	---	---	---	0.224	---	0.224
2.65	6,270	889.65	---	---	---	---	0.00	---	---	---	0.258	---	0.258
2.70	6,604	889.70	---	---	---	---	0.00	---	---	---	0.292	---	0.292
2.75	6,939	889.75	---	---	---	---	0.00	---	---	---	0.326	---	0.326
2.80	7,274	889.80	---	---	---	---	0.00	---	---	---	0.360	---	0.360
2.85	7,608	889.85	---	---	---	---	0.00	---	---	---	0.394	---	0.394
2.90	7,943	889.90	---	---	---	---	0.00	---	---	---	0.428	---	0.428
2.95	8,278	889.95	---	---	---	---	0.00	---	---	---	0.462	---	0.462
3.00	8,612	890.00	---	---	---	---	0.00	---	---	---	0.496	---	0.496
3.10	9,855	890.10	---	---	---	---	0.00	---	---	---	0.512	---	0.512
3.20	11,098	890.20	---	---	---	---	0.00	---	---	---	0.528	---	0.528
3.30	12,340	890.30	---	---	---	---	0.00	---	---	---	0.545	---	0.545
3.40	13,583	890.40	---	---	---	---	0.00	---	---	---	0.561	---	0.561
3.50	14,826	890.50	---	---	---	---	0.00	---	---	---	0.577	---	0.577
3.60	16,069	890.60	---	---	---	---	0.00	---	---	---	0.594	---	0.594
3.70	17,312	890.70	---	---	---	---	0.00	---	---	---	0.610	---	0.610
3.80	18,554	890.80	---	---	---	---	0.00	---	---	---	0.626	---	0.626
3.90	19,797	890.90	---	---	---	---	0.00	---	---	---	0.643	---	0.643
4.00	21,040	891.00	---	---	---	---	0.00	---	---	---	0.659	---	0.659
4.15	23,465	891.15	---	---	---	---	0.00	---	---	---	0.677	---	0.677
4.30	25,890	891.30	---	---	---	---	0.00	---	---	---	0.695	---	0.695
4.45	28,315	891.45	---	---	---	---	0.00	---	---	---	0.714	---	0.714
4.60	30,741	891.60	---	---	---	---	0.00	---	---	---	0.732	---	0.732
4.75	33,166	891.75	---	---	---	---	0.00	---	---	---	0.750	---	0.750
4.90	35,591	891.90	---	---	---	---	0.00	---	---	---	0.769	---	0.769
5.05	38,016	892.05	---	---	---	---	0.00	---	---	---	0.787	---	0.787
5.20	40,441	892.20	---	---	---	---	0.00	---	---	---	0.805	---	0.805
5.35	42,867	892.35	---	---	---	---	0.00	---	---	---	0.824	---	0.824
5.50	45,292	892.00	---	---	---	---	0.00	---	---	---	0.842	---	0.842
5.60	47,305	892.10	---	---	---	---	0.00	---	---	---	0.860	---	0.860
5.70	49,318	892.20	---	---	---	---	0.00	---	---	---	0.879	---	0.879
5.80	51,331	892.30	---	---	---	---	0.00	---	---	---	0.897	---	0.897
5.90	53,344	892.40	---	---	---	---	0.00	---	---	---	0.915	---	0.915
6.00	55,357	892.50	---	---	---	---	0.00	---	---	---	0.934	---	0.934
6.10	57,370	892.60	---	---	---	---	1.05	---	---	---	0.952	---	2.003
6.20	59,383	892.70	---	---	---	---	2.97	---	---	---	0.970	---	3.945
6.30	61,396	892.80	---	---	---	---	5.47	---	---	---	0.988	---	6.455
6.40	63,409	892.90	---	---	---	---	8.42	---	---	---	1.007	---	9.424
6.50	65,422	893.00	---	---	---	---	11.77	---	---	---	1.025	---	12.80
6.55	66,579	893.05	---	---	---	---	13.58	---	---	---	1.034	---	14.62
6.60	67,735	893.10	---	---	---	---	15.48	---	---	---	1.043	---	16.52
6.65	68,892	893.15	---	---	---	---	17.45	---	---	---	1.053	---	18.50
6.70	70,048	893.20	---	---	---	---	19.50	---	---	---	1.062	---	20.56
6.75	71,204	893.25	---	---	---	---	21.63	---	---	---	1.071	---	22.70
6.80	72,361	893.30	---	---	---	---	23.82	---	---	---	1.080	---	24.90
6.85	73,517	893.35	---	---	---	---	26.09	---	---	---	1.090	---	27.18
6.90	74,674	893.40	---	---	---	---	28.43	---	---	---	1.099	---	29.53
6.95	75,830	893.45	---	---	---	---	30.83	---	---	---	1.108	---	31.94
7.00	76,986	893.50	---	---	---	---	33.30	---	---	---	1.117	---	34.42

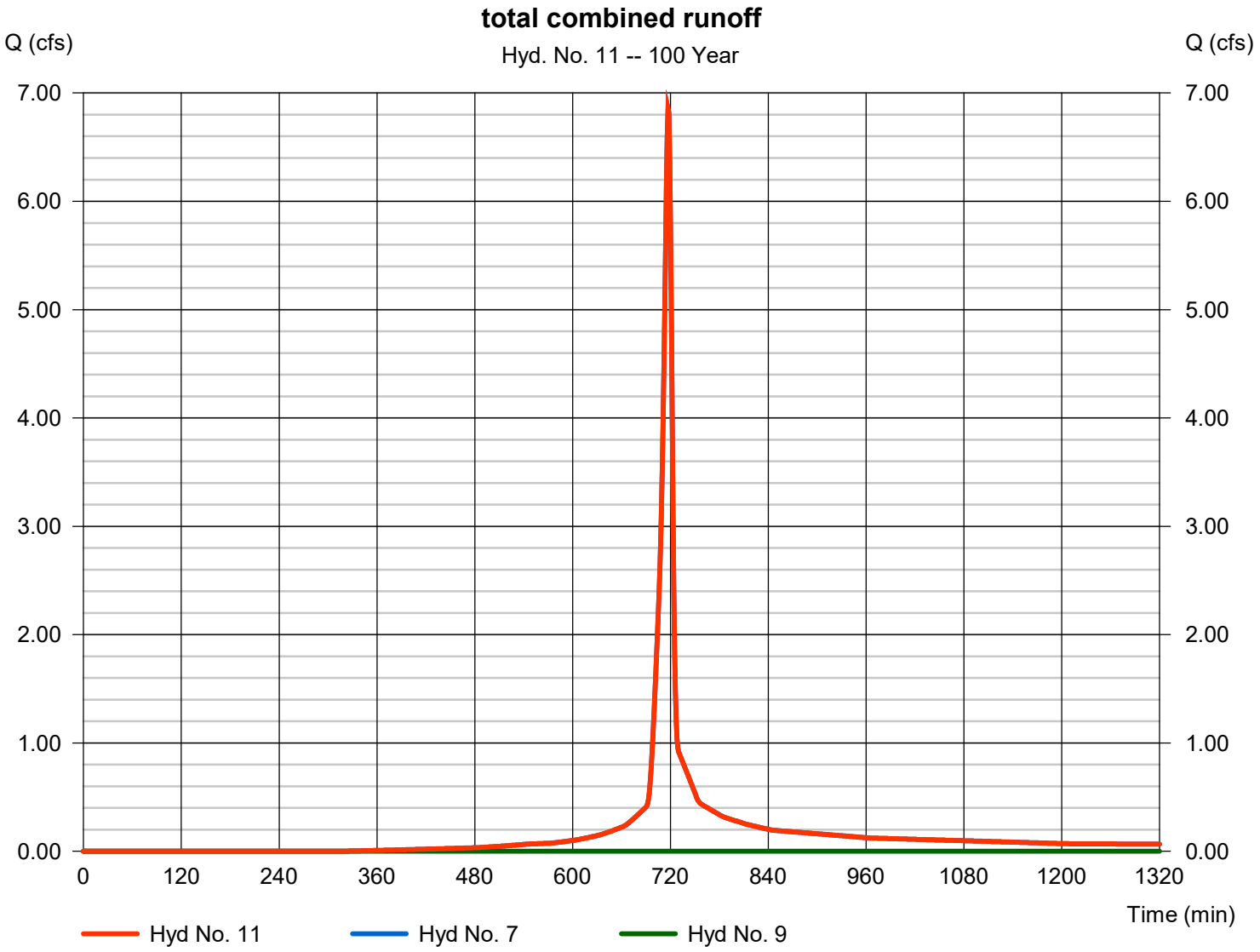
...End

Hydrograph Report

Hyd. No. 11

total combined runoff

Hydrograph type	=	Combine	Peak discharge	=	6.850 cfs
Storm frequency	=	100 yrs	Time to peak	=	717 min
Time interval	=	1 min	Hyd. volume	=	14,405 cuft
Inflow hyds.	=	7, 9	Contrib. drain. area	=	0.650 ac



Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	44.1315	9.9000	0.8802	--------
2	53.8345	10.2000	0.8795	--------
3	0.0000	0.0000	0.0000	--------
5	55.7400	9.7000	0.8337	--------
10	50.8422	8.4000	0.7804	--------
25	50.9021	7.7000	0.7431	--------
50	47.7352	6.7000	0.7032	--------
100	43.3500	5.6000	0.6574	--------

File name: Newark_OH.IDF

Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	4.09	3.17	2.60	2.22	1.94	1.72	1.55	1.41	1.30	1.20	1.12	1.05
2	4.92	3.83	3.15	2.69	2.35	2.09	1.89	1.72	1.58	1.47	1.37	1.28
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	5.93	4.65	3.85	3.30	2.90	2.59	2.35	2.15	1.98	1.84	1.72	1.62
10	6.71	5.24	4.34	3.73	3.29	2.95	2.68	2.46	2.28	2.13	1.99	1.88
25	7.70	6.02	5.00	4.31	3.81	3.43	3.13	2.88	2.67	2.50	2.35	2.22
50	8.47	6.59	5.48	4.74	4.20	3.79	3.46	3.20	2.98	2.79	2.63	2.49
100	9.18	7.12	5.93	5.14	4.57	4.14	3.80	3.52	3.29	3.09	2.92	2.77

Tc = time in minutes. Values may exceed 60.

Precip. file name: \\global.gsp\data\nf\na_nf08\4672401\01Work\03Tech\LP\01Storm\02Detention\4672401 precip.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.77	3.34	0.00	4.30	5.15	6.45	7.50	8.57
SCS 6-Hr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Gresham Smith

APPENDIX D: USDA WEB SOIL SURVEY

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for McHenry County, Illinois



July 20, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

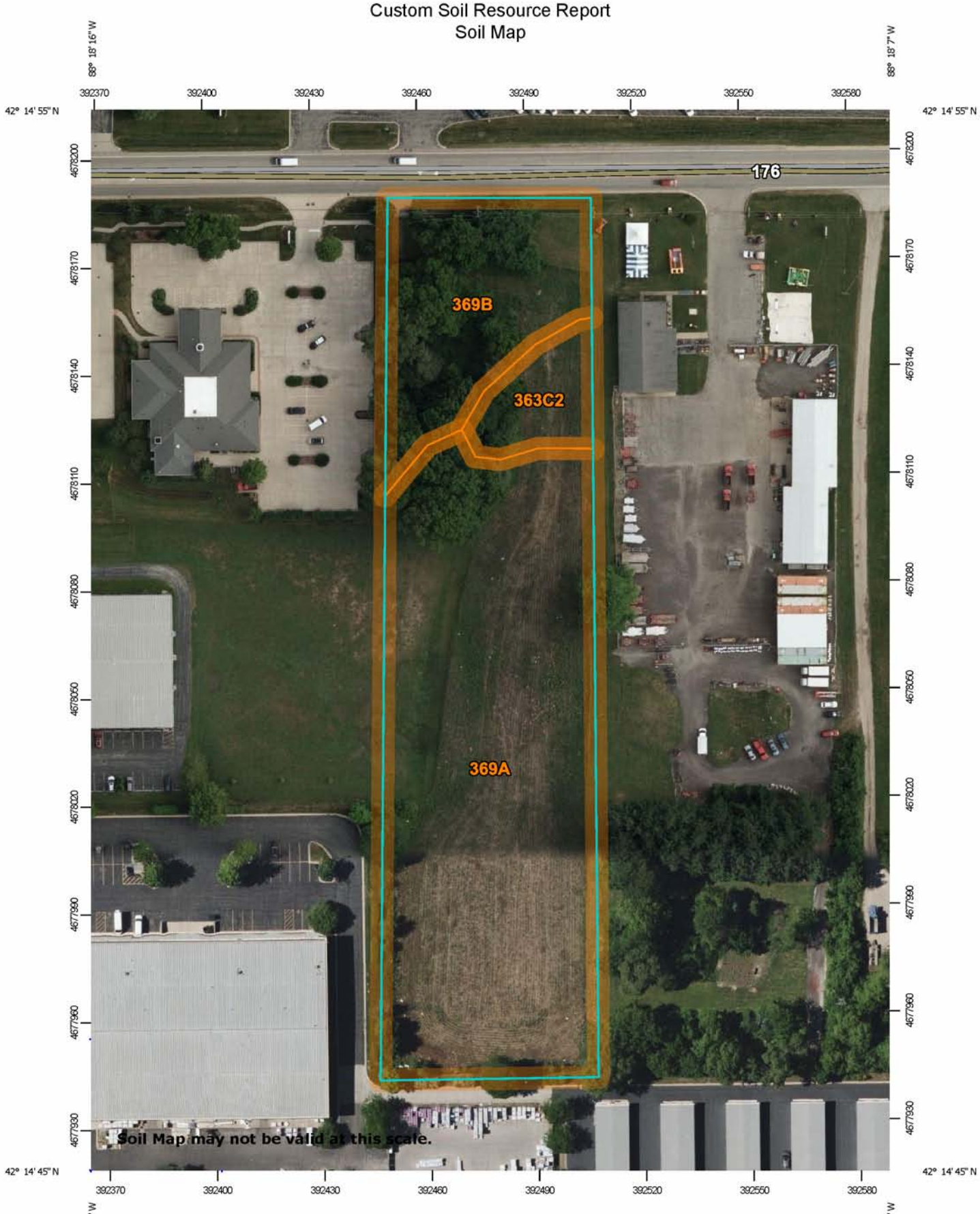
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,440 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: McHenry County, Illinois
Survey Area Data: Version 18, Aug 31, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2020—Jul 1, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
363C2	Griswold loam, 4 to 6 percent slopes, eroded	0.2	6.6%
369A	Waupecan silt loam, 0 to 2 percent slopes	2.6	71.8%
369B	Waupecan silt loam, 2 to 4 percent slopes	0.8	21.7%
Totals for Area of Interest		**3.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

McHenry County, Illinois

363C2—Griswold loam, 4 to 6 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2szg7
Elevation: 720 to 980 feet
Mean annual precipitation: 35 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 140 to 175 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Griswold, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Griswold, Eroded

Setting

Landform: Till plains
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till

Typical profile

Ap - 0 to 10 inches: loam
Bt - 10 to 24 inches: clay loam
BC - 24 to 27 inches: sandy loam
C - 27 to 79 inches: sandy loam

Properties and qualities

Slope: 4 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F095XB010WI - Loamy and Clayey Upland
Forage suitability group: Mod AWC, adequately drained (G095BY005WI)
Other vegetative classification: Mod AWC, adequately drained (G095BY005WI)
Hydric soil rating: No

Minor Components

Warsaw

Percent of map unit: 10 percent
Landform: Till plains, kames
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R110XY006IL - Dry Glacial Drift Upland Prairie
Other vegetative classification: Mod AWC, adequately drained (G095BY005WI)
Hydric soil rating: No

369A—Waupecan silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 6439
Elevation: 680 to 1,020 feet
Mean annual precipitation: 29 to 35 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Waupecan and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waupecan

Setting

Landform: Stream terraces, outwash plains
Parent material: Loess over outwash

Typical profile

H1 - 0 to 13 inches: silt loam
H2 - 13 to 38 inches: silty clay loam
H3 - 38 to 55 inches: stratified loam to gravelly loamy sand
H4 - 55 to 70 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent

Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: F095XB010WI - Loamy and Clayey Upland
Hydric soil rating: No

369B—Waupecan silt loam, 2 to 4 percent slopes

Map Unit Setting

National map unit symbol: 643b
Elevation: 680 to 1,020 feet
Mean annual precipitation: 29 to 35 inches
Mean annual air temperature: 45 to 54 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Waupecan and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Waupecan

Setting

Landform: Outwash plains, stream terraces
Parent material: Loess over outwash

Typical profile

H1 - 0 to 13 inches: silt loam
H2 - 13 to 38 inches: silty clay loam
H3 - 38 to 55 inches: stratified loam to gravelly loamy sand
H4 - 55 to 70 inches: very gravelly sandy loam

Properties and qualities

Slope: 2 to 4 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F095XB010WI - Loamy and Clayey Upland

Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Physical Properties

Soil Physical Properties are measured or inferred from direct observations in the field or laboratory. Examples of soil physical properties include percent clay, organic matter, saturated hydraulic conductivity, available water capacity, and bulk density.

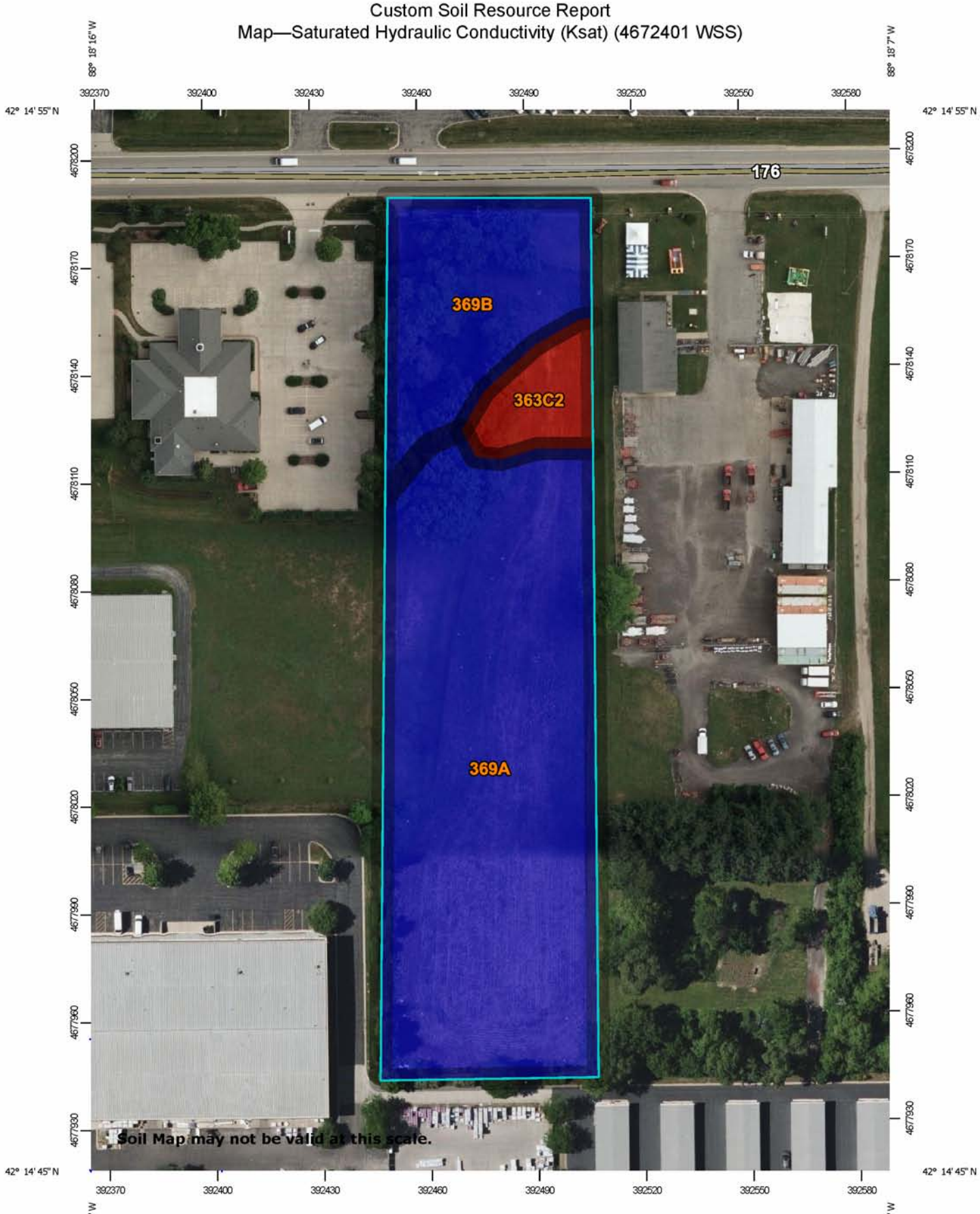
Saturated Hydraulic Conductivity (Ksat) (4672401 WSS)

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity is considered in the design of soil drainage systems and septic tank absorption fields.

For each soil layer, this attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

The numeric Ksat values have been grouped according to standard Ksat class limits.

Custom Soil Resource Report
Map—Saturated Hydraulic Conductivity (Ksat) (4672401 WSS)



Map Scale: 1:1,440 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- <= 17.8480
- > 17.8480 and <= 41.9478
- Not rated or not available

Soil Rating Lines

- <= 17.8480
- > 17.8480 and <= 41.9478
- Not rated or not available

Soil Rating Points

- <= 17.8480
- > 17.8480 and <= 41.9478
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: McHenry County, Illinois
Survey Area Data: Version 18, Aug 31, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2020—Jul 1, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Saturated Hydraulic Conductivity (Ksat) (4672401 WSS)

Map unit symbol	Map unit name	Rating (micrometers per second)	Acres in AOI	Percent of AOI
363C2	Griswold loam, 4 to 6 percent slopes, eroded	17.8480	0.2	6.6%
369A	Waupecan silt loam, 0 to 2 percent slopes	41.9478	2.6	71.8%
369B	Waupecan silt loam, 2 to 4 percent slopes	41.9478	0.8	21.7%
Totals for Area of Interest			**3.6**	**100.0%**

Rating Options—Saturated Hydraulic Conductivity (Ksat) (4672401 WSS)

Units of Measure: micrometers per second

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Fastest

Interpret Nulls as Zero: No

Layer Options (Horizon Aggregation Method): All Layers (Weighted Average)

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (4672401 WSS)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

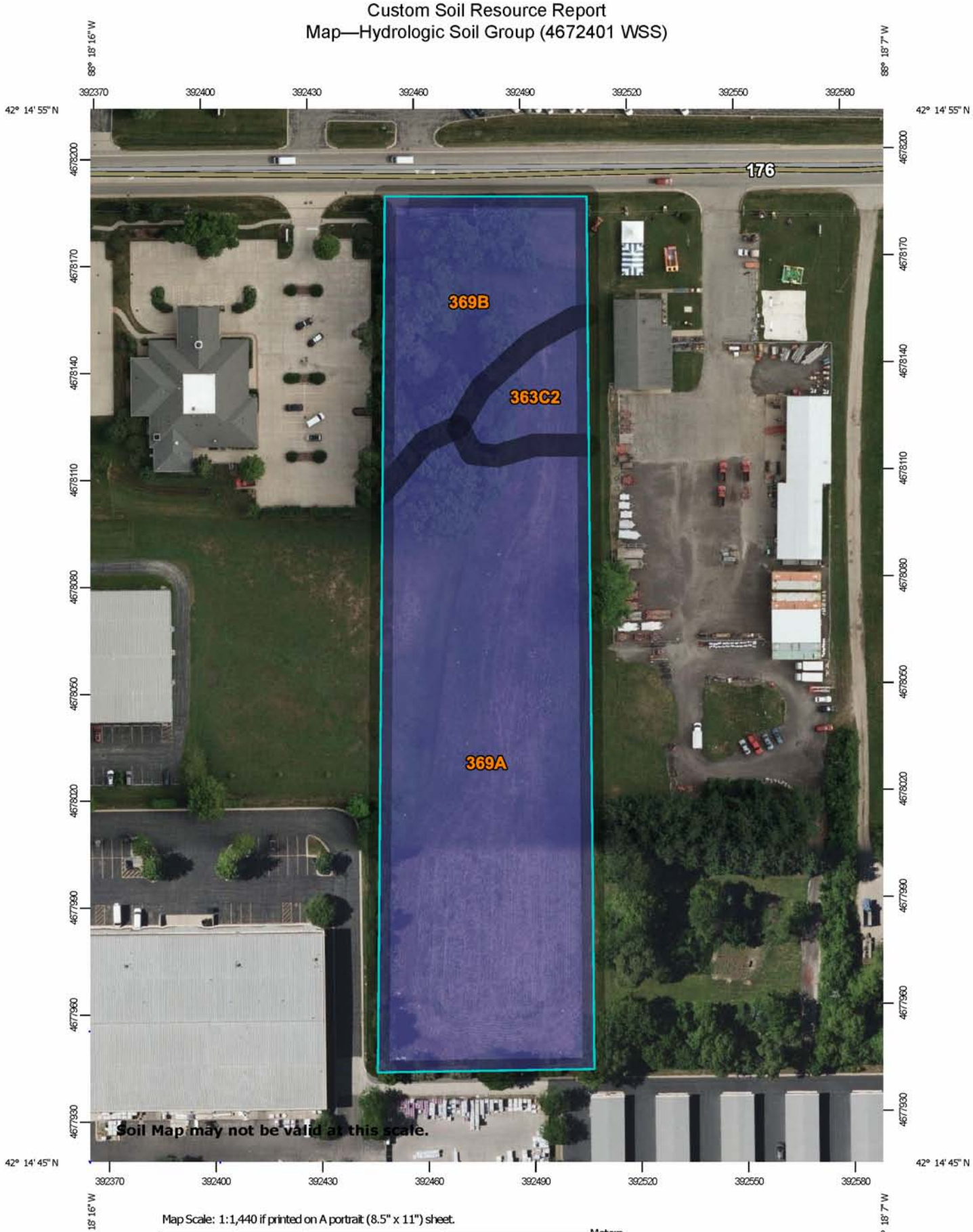
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group (4672401 WSS)



Map Scale: 1:1,440 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: McHenry County, Illinois
Survey Area Data: Version 18, Aug 31, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 13, 2020—Jul 1, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (4672401 WSS)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
363C2	Griswold loam, 4 to 6 percent slopes, eroded	B	0.2	6.6%
369A	Waupecan silt loam, 0 to 2 percent slopes	B	2.6	71.8%
369B	Waupecan silt loam, 2 to 4 percent slopes	B	0.8	21.7%
Totals for Area of Interest			**3.6**	**100.0%**

Rating Options—Hydrologic Soil Group (4672401 WSS)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

References

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Gresham Smith

APPENDIX E: BULLETIN 75 NOMOGRAPH WORKSHEET

NOMOGRAPH: BULLETIN 75 RAINFALL DATA

PROJECT: Storage of America - Crystal Lake, IL **PERMIT NUMBER:** PLN-2023-00142

LOCATION: 439 E Terra Cotta Avenue **DATE:** 3/12/2024

DEVELOPMENT INFORMATION

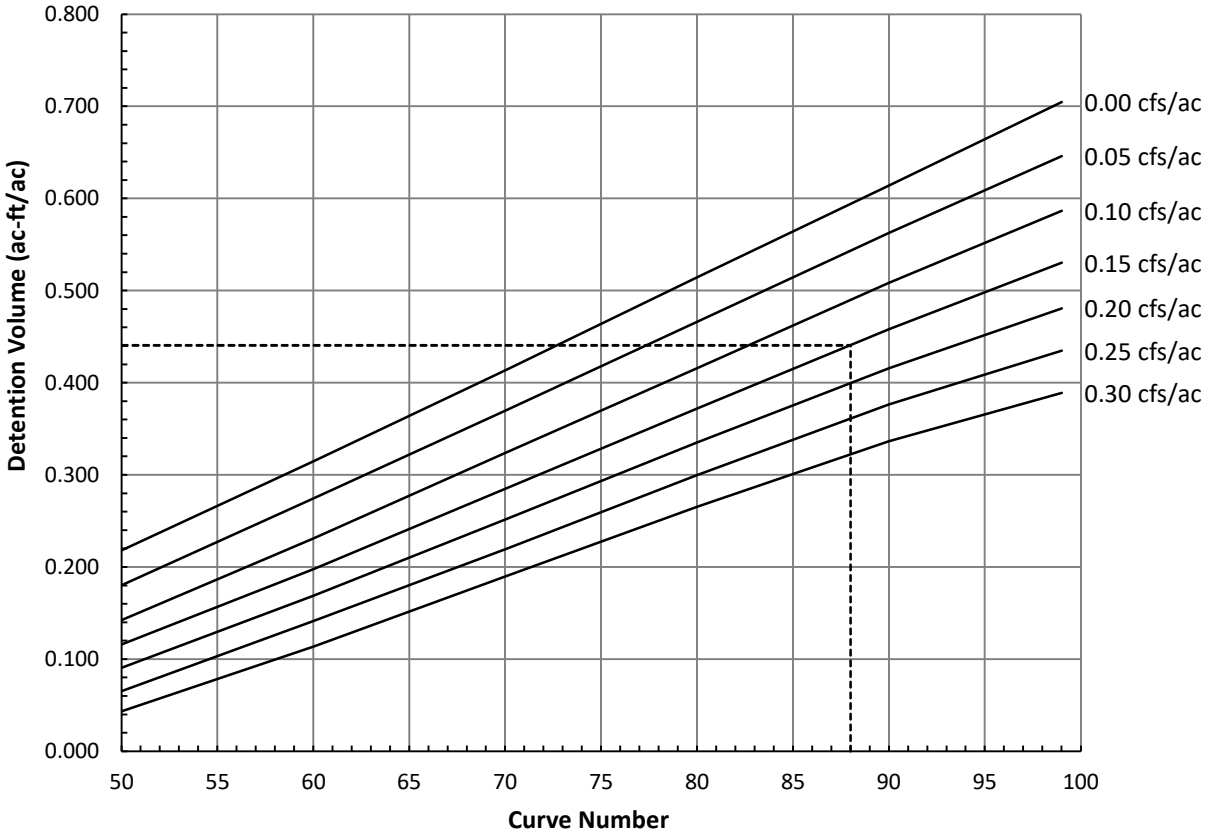
1.	Detained Area	3.110	acres
2.	Curve Number	88.00	
3.	Actual Release Rate	**0.467**	cfs

REQUIRED DETENTION VOLUME

4.	Required Detention Volume	**1.370**	ac-ft

NOMOGRAPH

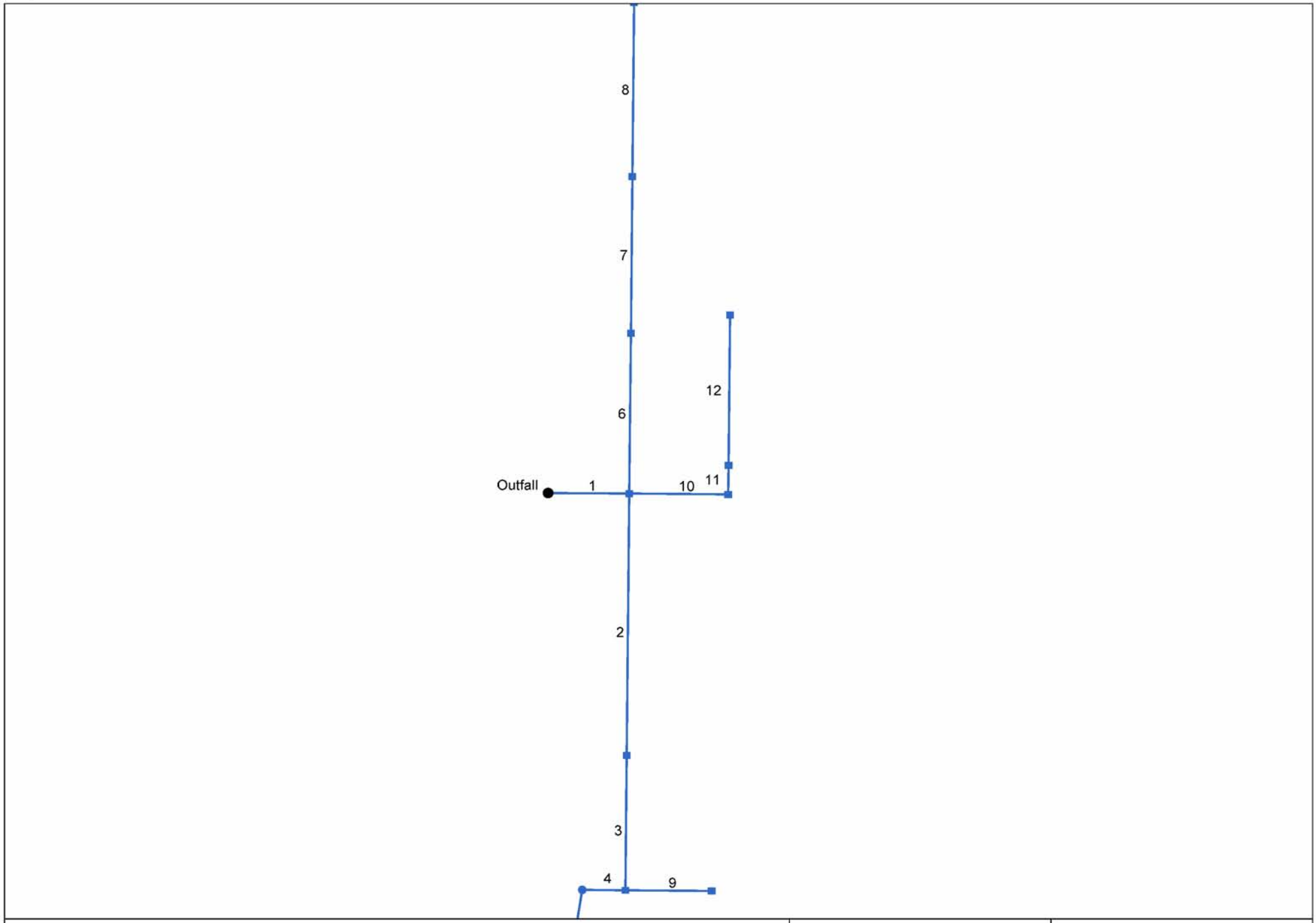
NOMOGRAPH: BULLETIN 75



Gresham Smith

APPENDIX F: STORM SEWER REPORT

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 4672401 storm sewer 1.stm	Number of lines: 12	Date: 3/27/2024

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	51.779	0.23	1.68	0.90	0.21	1.42	5.0	7.7	6.8	9.61	18.57	5.67	24	0.48	887.00	887.25	888.02	888.36	890.00	892.85	ST-A2 - ST-A1
2	1	180.000	0.06	0.53	0.90	0.05	0.42	5.0	6.9	6.9	2.89	3.51	4.20	12	0.69	887.35	888.60	888.36	889.33	892.85	893.70	ST-A3 - ST-A2
3	2	92.498	0.16	0.47	0.90	0.14	0.36	5.0	6.4	7.1	2.56	3.39	4.60	12	0.65	888.70	889.30	889.35	889.98	893.70	892.90	ST-A4 - ST-A3
4	3	27.486	0.00	0.16	0.00	0.00	0.08	0.0	5.8	7.2	0.60	4.40	2.00	12	1.09	889.40	889.70	889.98	890.02	892.90	893.55	ST-A5 - ST-A4
5	4	39.868	0.16	0.16	0.52	0.08	0.08	5.0	5.0	7.4	0.62	5.16	3.60	12	1.51	889.80	890.40	890.03	890.73	893.55	891.80	ST-A6 - ST-A5
6	1	109.988	0.09	0.48	0.90	0.08	0.40	5.0	6.8	7.0	2.82	4.21	4.12	12	1.00	887.35	888.45	888.36	889.17	892.85	894.00	ST-A11 - ST-A2
7	6	107.645	0.16	0.39	0.90	0.14	0.32	5.0	6.2	7.1	2.30	4.25	4.39	12	1.02	888.55	889.65	889.17	890.30	894.00	894.40	ST-A12 - ST-A11
8	7	119.866	0.23	0.23	0.78	0.18	0.18	5.0	5.0	7.4	1.33	4.21	3.27	12	1.00	889.75	890.95	890.30	891.44	894.40	895.30	ST-A13 - ST-A12
9	3	55.014	0.15	0.15	0.90	0.14	0.14	5.0	5.0	7.4	1.00	3.11	2.65	12	0.55	889.40	889.70	889.98	890.12	892.90	892.60	ST-A7 - ST-A4
10	1	63.006	0.14	0.44	0.90	0.13	0.40	5.0	6.1	7.1	2.82	2.90	3.61	12	0.48	887.35	887.65	888.36	888.62	892.85	892.75	ST-A8 - ST-A2
11	10	19.997	0.10	0.30	0.90	0.09	0.27	5.0	6.0	7.2	1.93	4.21	2.46	12	1.00	887.55	887.75	888.93	888.97	892.75	893.00	ST-A9 - ST-A8
12	11	103.153	0.20	0.20	0.90	0.18	0.18	5.0	5.0	7.4	1.34	4.44	2.61	12	1.11	887.85	889.00	889.02	889.49	893.00	894.03	ST-A10 - ST-A9

Project File: 4672401 storm sewer 1.stm

Number of lines: 12

Run Date: 3/27/2024

NOTES:Intensity = 181.97 / (Inlet time + 20.80) ^ 0.98; Return period =Yrs. 10 ; c = cir e = ellip b = box

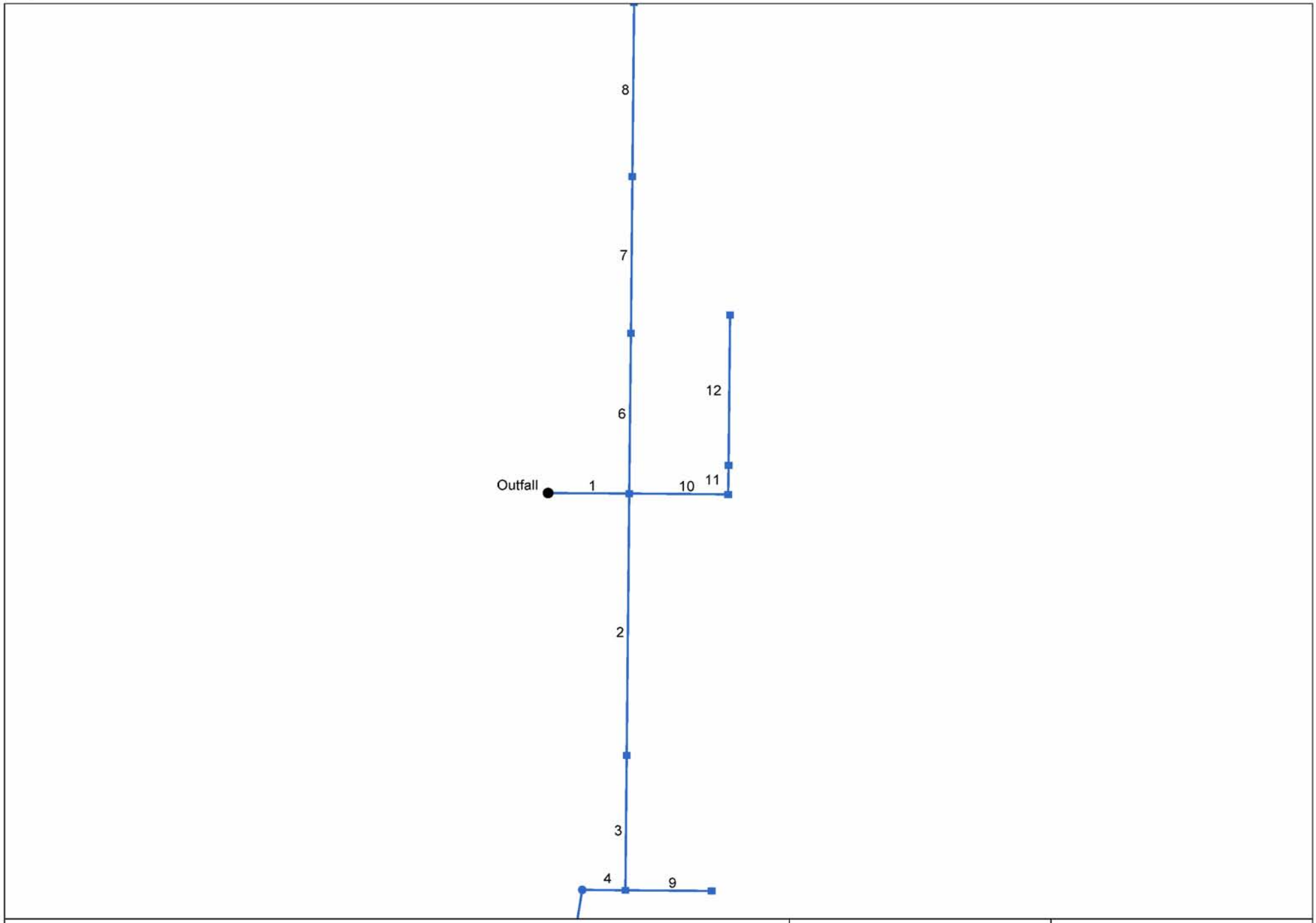
Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	ST-A2	1.54	0.08	1.62	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.10	17.67	0.10	17.67	0.0	Off
2	ST-A3	0.40	0.00	0.40	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.04	9.51	0.04	9.51	0.0	Off
3	ST-A4	1.07	0.00	1.07	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.08	14.42	0.08	14.42	0.0	Off
4	ST-A5	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
5	ST-A6	0.62	0.00	0.62	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.05	11.29	0.05	11.29	0.0	Off
6	ST-A11	0.60	0.00	0.52	0.08	DrGrt	0.0	0.00	0.00	4.20	4.20	0.010	2.00	0.015	0.015	0.013	0.07	11.47	0.07	11.47	0.0	1
7	ST-A12	1.07	0.00	1.07	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.08	14.42	0.08	14.42	0.0	Off
8	ST-A13	1.33	0.00	1.33	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.09	16.03	0.09	16.03	0.0	Off
9	ST-A7	1.00	0.00	1.00	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.07	13.99	0.07	13.99	0.0	Off
10	ST-A8	0.94	0.18	1.11	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.08	14.69	0.08	14.69	0.0	Off
11	ST-A9	0.67	0.30	0.80	0.18	DrGrt	0.0	0.00	0.00	4.20	4.20	0.010	2.00	0.015	0.015	0.013	0.09	14.13	0.09	14.13	0.0	10
12	ST-A10	1.34	0.00	1.03	0.30	DrGrt	0.0	0.00	0.00	4.20	4.20	0.010	2.00	0.015	0.015	0.013	0.10	15.47	0.10	15.47	0.0	11

Project File: 4672401 storm sewer 1.stm | Number of lines: 12 | Run Date: 3/27/2024

NOTES: Inlet N-Values = 0.016; Intensity = 181.97 / (Inlet time + 20.80) ^ 0.98; Return period = 10 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 4672401 storm sewer 1.stm	Number of lines: 12	Date: 3/27/2024

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	51.779	0.23	1.68	0.90	0.21	1.42	5.0	6.6	11.6	16.57	18.57	6.69	24	0.48	887.00	887.25	888.47	888.72	890.00	892.85	ST-A2 - ST-A1
2	1	180.000	0.06	0.53	0.90	0.05	0.42	5.0	6.1	11.8	4.93	3.51	6.28	12	0.69	887.35	888.60	890.29	892.76	892.85	893.70	ST-A3 - ST-A2
3	2	92.498	0.16	0.47	0.90	0.14	0.36	5.0	5.9	12.0	4.33	3.39	5.52	12	0.65	888.70	889.30	893.06	894.04	893.70	892.90	ST-A4 - ST-A3
4	3	27.486	0.00	0.16	0.00	0.00	0.08	0.0	5.5	12.1	1.01	4.40	1.28	12	1.09	889.40	889.70	895.11	895.12	892.90	893.55	ST-A5 - ST-A4
5	4	39.868	0.16	0.16	0.52	0.08	0.08	5.0	5.0	12.4	1.03	5.16	1.31	12	1.51	889.80	890.40	895.15	895.17	893.55	891.80	ST-A6 - ST-A5
6	1	109.988	0.09	0.48	0.90	0.08	0.40	5.0	6.1	11.9	4.80	4.21	6.11	12	1.00	887.35	888.45	890.29	891.72	892.85	894.00	ST-A11 - ST-A2
7	6	107.645	0.16	0.39	0.90	0.14	0.32	5.0	5.7	12.0	3.89	4.25	4.95	12	1.02	888.55	889.65	892.01	892.93	894.00	894.40	ST-A12 - ST-A11
8	7	119.866	0.23	0.23	0.78	0.18	0.18	5.0	5.0	12.4	2.22	4.21	2.82	12	1.00	889.75	890.95	893.12	893.45	894.40	895.30	ST-A13 - ST-A12
9	3	55.014	0.15	0.15	0.90	0.14	0.14	5.0	5.0	12.4	1.67	3.11	2.12	12	0.55	889.40	889.70	895.11	895.19	892.90	892.60	ST-A7 - ST-A4
10	1	63.006	0.14	0.44	0.90	0.13	0.40	5.0	5.7	12.0	4.77	2.90	6.07	12	0.48	887.35	887.65	890.29	891.10	892.85	892.75	ST-A8 - ST-A2
11	10	19.997	0.10	0.30	0.90	0.09	0.27	5.0	5.6	12.1	3.26	4.21	4.15	12	1.00	887.55	887.75	891.95	892.08	892.75	893.00	ST-A9 - ST-A8
12	11	103.153	0.20	0.20	0.90	0.18	0.18	5.0	5.0	12.4	2.22	4.44	2.83	12	1.11	887.85	889.00	892.21	892.50	893.00	894.03	ST-A10 - ST-A9

Project File: 4672401 storm sewer 1.stm

Number of lines: 12

Run Date: 3/27/2024

NOTES:Intensity = 277.62 / (Inlet time + 20.10) ^ 0.97; Return period =Yrs. 100 ; c = cir e = ellip b = box

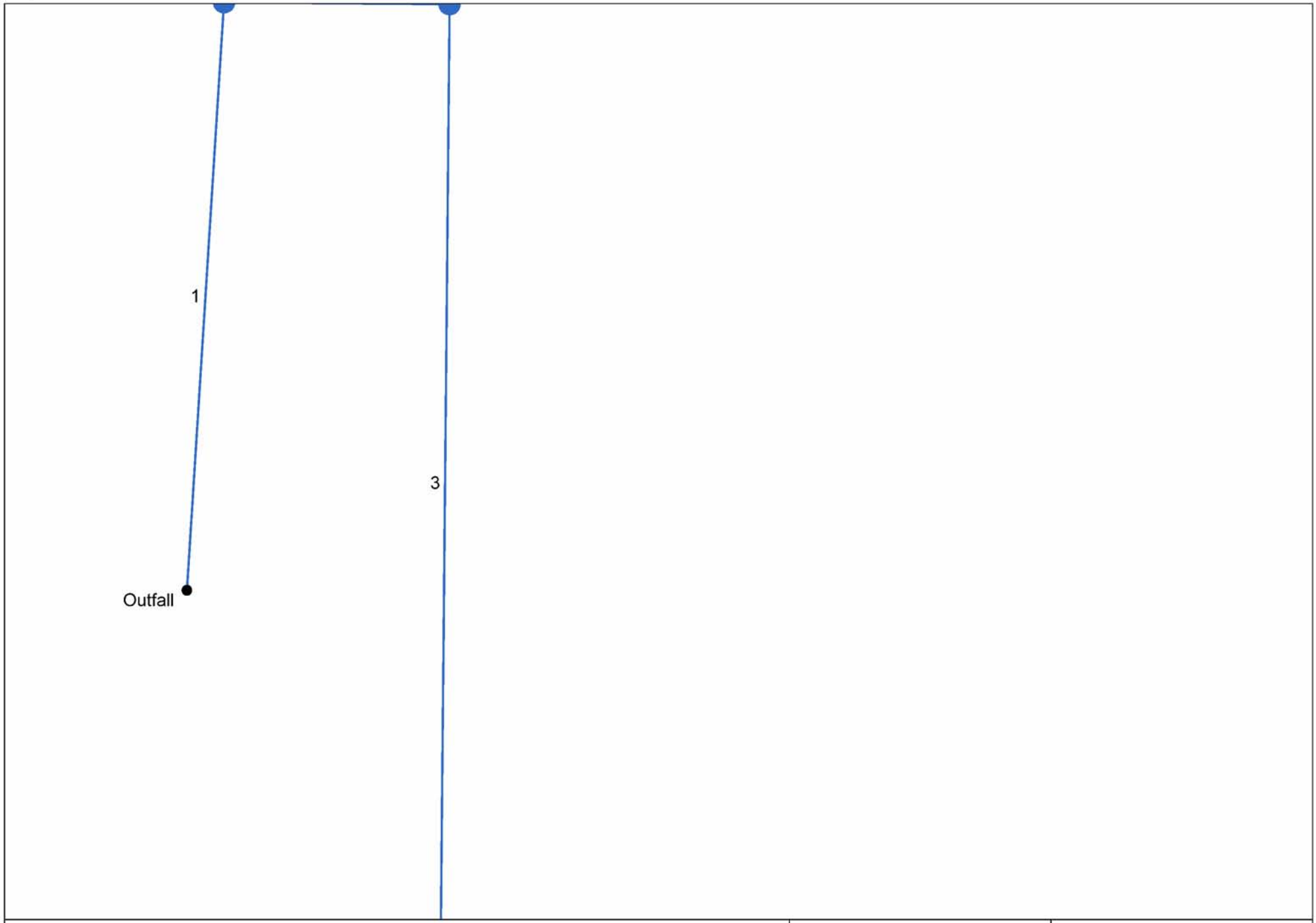
Inlet Report

Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	ST-A2	2.56	0.19	2.75	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.14	23.34	0.14	23.34	0.0	Off
2	ST-A3	0.67	0.00	0.67	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.06	11.65	0.06	11.65	0.0	Off
3	ST-A4	1.78	0.00	1.78	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.11	18.53	0.11	18.53	0.0	Off
4	ST-A5	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
5	ST-A6	1.03	0.00	1.03	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.07	14.14	0.07	14.14	0.0	Off
6	ST-A11	1.00	0.00	0.81	0.19	DrGrt	0.0	0.00	0.00	4.20	4.20	0.010	2.00	0.015	0.015	0.013	0.09	14.13	0.09	14.13	0.0	1
7	ST-A12	1.78	0.00	1.78	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.11	18.53	0.11	18.53	0.0	Off
8	ST-A13	2.22	0.00	2.22	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.12	20.80	0.12	20.80	0.0	Off
9	ST-A7	1.67	0.00	1.67	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.10	17.93	0.10	17.93	0.0	Off
10	ST-A8	1.56	0.49	2.04	0.00	DrGrt	0.0	0.00	9.44	4.20	4.20	Sag	2.00	0.015	0.015	0.000	0.12	19.92	0.12	19.92	0.0	Off
11	ST-A9	1.11	0.68	1.30	0.49	DrGrt	0.0	0.00	0.00	4.20	4.20	0.010	2.00	0.015	0.015	0.013	0.11	16.80	0.11	16.80	0.0	10
12	ST-A10	2.22	0.00	1.55	0.68	DrGrt	0.0	0.00	0.00	4.20	4.20	0.010	2.00	0.015	0.015	0.013	0.12	18.13	0.12	18.13	0.0	11

Project File: 4672401 storm sewer 1.stm | Number of lines: 12 | Run Date: 3/27/2024

NOTES: Inlet N-Values = 0.016; Intensity = 277.62 / (Inlet time + 20.10) ^ 0.97; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are throat.

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 4672401 off-site bypass.stm	Number of lines: 4	Date: 3/27/2024

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	118.214	0.00	3.55	0.00	0.00	1.70	0.0	28.7	6.5	11.09	18.07	5.86	24	0.46	887.00	887.54	888.13	888.73	889.65	890.94	ST-B2 - ST-B1
2	1	45.040	0.00	3.55	0.00	0.00	1.70	0.0	28.5	6.5	11.13	17.81	5.83	24	0.44	887.64	887.84	888.79	889.04	890.94	894.48	ST-B3 - ST-B2
3	2	188.130	0.00	3.55	0.00	0.00	1.70	0.0	27.6	6.6	11.33	18.07	5.89	24	0.46	887.94	888.80	889.09	890.01	894.48	893.08	ST-B4 - ST-B3
4	3	130.021	3.55	3.55	0.48	1.70	1.70	27.0	27.0	6.7	11.47	18.16	5.93	24	0.46	888.90	889.50	890.05	890.71	893.08	892.15	ST-B5 - ST-B4

Project File: 4672401 off-site bypass.stm | Number of lines: 4 | Run Date: 3/27/2024

NOTES:Intensity = 277.62 / (Inlet time + 20.10) ^ 0.97; Return period =Yrs. 100 ; c = cir e = ellip b = box

Gresham Smith

APPENDIX G: DOWNSTREAM HEADWALL ANALYSIS

LEGEND

PERVIOUS (OPEN SPACE)

PERVIOUS (WOODED)

IMPERVIOUS

DOWNSTREAM HEADWALL
REFER TO INVERT 8, SHEET C100
SE 12" CONC. = 883.71

TRIBUTARY AREA TO DOWNSTREAM
HEADWALL IN EXISTING CONDITIONS
A = 7.91 AC.
C = 0.53

NORTH

60' 0 60' 120'

GRAPHIC SCALE

N 00°31'11" E 825.54' Rec.

14-33-401-006
Unsubdivided

14-33-401-003
Unsubdivided
172,298 Sq. Feet
3.96 Acres

Lot 1
Wolfs Erick
Street Sub.
Doc. 2005R0186012

Lot 3
Oak Street
Ramona Sub.
2016R0034791

Terra Cotta Avenue
66' Public Right of Way

Basis of Bearings:
N 89°25'03" E 207.05' Rec.

S 89°19'59" W 216.53' Rec.

EXISTING CONDITIONS

LEGEND

IMPERVIOUS

PERVIOUS (OPEN SPACE)

DOWNSTREAM HEADWALL
REFER TO INVERT 8, SHEET C100
SE 12" CONC. = 883.71

TRIBUTARY AREA TO DOWNSTREAM
HEADWALL IN PROPOSED CONDITIONS
A = 4.82 AC.
C = 0.48

NORTH

60' 0 60' 120'

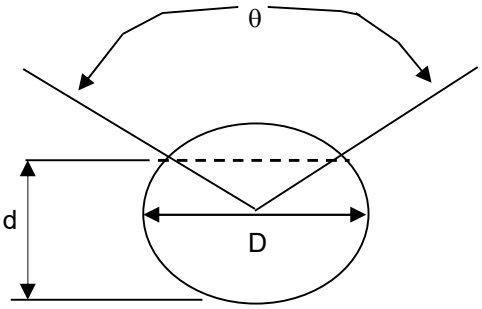
GRAPHIC SCALE

PROPOSED CONDITIONS

MANNING'S EQUATION FOR PIPE FLOW

Project:	SOA Crystal Lake IL	Location:	Crystal Lake, IL	
By:	Nicholas Coates	Date:	3/26/2024	
Chk. By:	Ethan Kluding	Date:	3/26/2024	mdo version 12.8.00

Clear Data Entry Cells



INPUT

D=	12	inches
d=	11.5	inches
n=	0.013	mannings coeff
θ=	47.1	degrees
S=	0.01	slope in/in

Mannings Formula

$Q=(1.486/n)AR_h^{2/3}S^{1/2}$

R=A/P

A=cross sectional area

P=wetted perimeter

S=slope of channel

n=Manning's roughness coefficient

$V=(1.49/n)R_h^{2/3}S^{1/2}$

Q=V x A

Solution to Mannings Equation				
Area,ft^2	Wetted Perimeter, ft	Hydraulic Radius, ft	velocity ft/s	flow, cfs
0.77	2.73	0.28	4.93	3.82

Manning's n-values	
PVC	0.01
PE (<9"dia)	0.015
PE (>12"dia)	0.02
PE(9-12"dia)	0.017
CMP	0.025
ADS N12	0.012
HCMP	0.023
Conc	0.013

Created by: Mike O'Shea

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Apr 1 2024

Downstream Headwall

Invert Elev Dn (ft)	=	882.80
Pipe Length (ft)	=	86.00
Slope (%)	=	1.06
Invert Elev Up (ft)	=	883.71
Rise (in)	=	12.0
Shape	=	Circular
Span (in)	=	12.0
No. Barrels	=	1
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Square edge w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0098, 2, 0.0398, 0.67, 0.5

Embankment

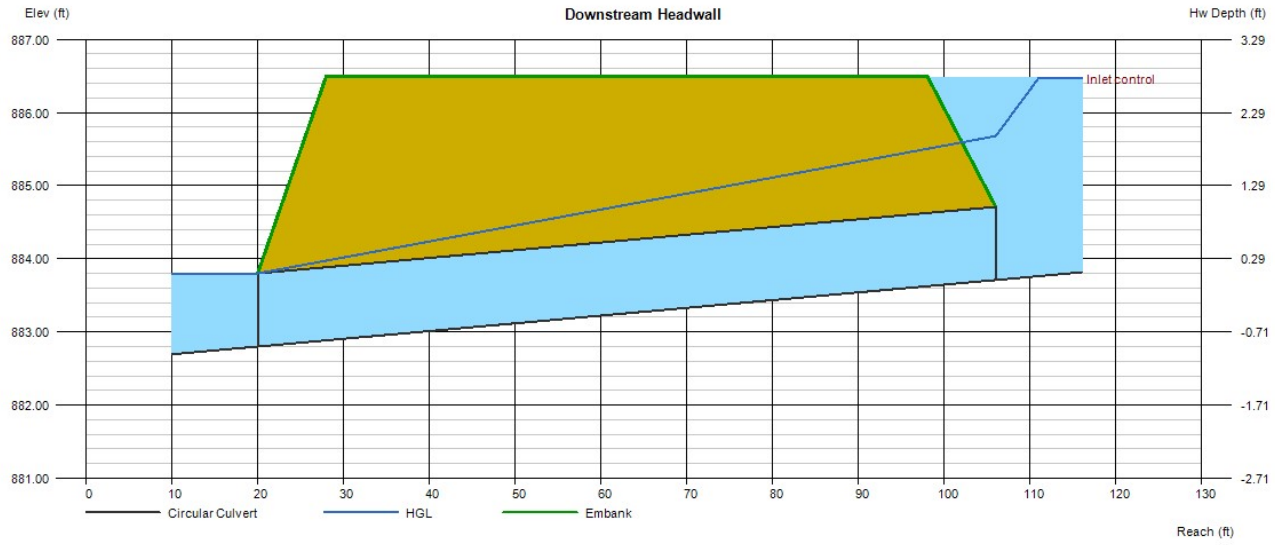
Top Elevation (ft)	=	886.50
Top Width (ft)	=	70.00
Crest Width (ft)	=	30.00

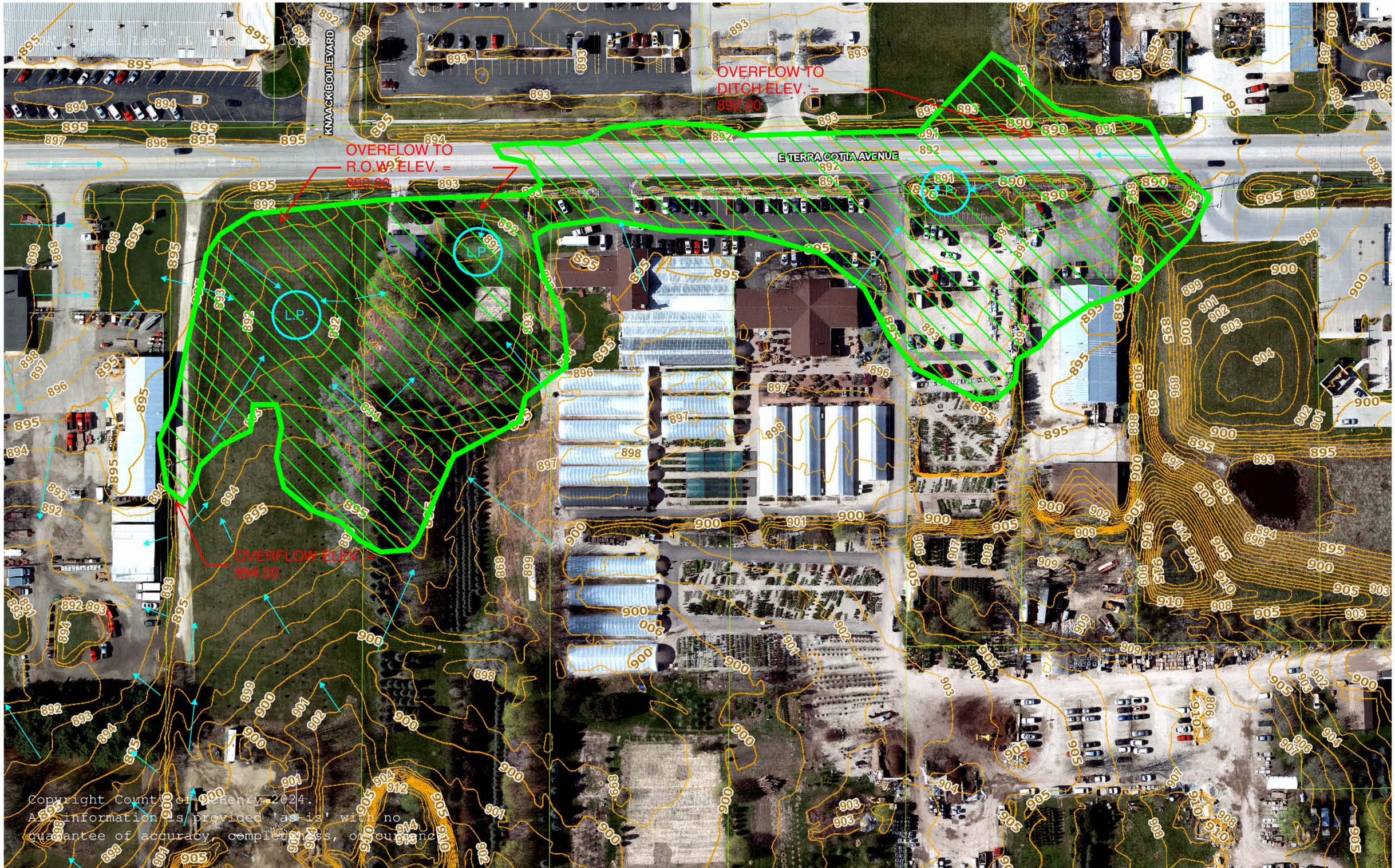
Calculations

Qmin (cfs)	=	5.70
Qmax (cfs)	=	5.70
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	5.70
Qpipe (cfs)	=	5.70
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	7.26
Veloc Up (ft/s)	=	7.26
HGL Dn (ft)	=	883.80
HGL Up (ft)	=	885.68
Hw Elev (ft)	=	886.47
Hw/D (ft)	=	2.76
Flow Regime	=	Inlet Control




OVERFLOW TO
DITCH ELEV. =
892.00
OVERFLOW TO
R.O.W. ELEV. =
892.00
E TERRA COTTA AVENUE
KNAACK BOULEVARD
L.P.
L.P.
L.P.
OVERFLOW ELEV. =
894.00
Copyright County of McHenry 2024.
All information is provided 'as-is' with no
guarantee of accuracy, completeness, or currency.

SOA Crystal Lake IL - Aerial Topo

E TERRA COTTA AVENUE

KNAACK BOULEVARD

H.P.

OVERFLOW ELEV
886.50

DOWNSTREAM HEADWALL
I.E. = 883.71

SITE

ERICK STREET

Copyright County of McHenry
All information is provided
guarantee of accuracy, co

APPENDIX H: INFILTRATION TESTS

CITY of CRYSTAL LAKE SOIL BORING REPORT for STORMWATER MANAGEMENT

WILLIAM R. KREZNOR & ASSOCIATES, INC.
SOIL and ENVIRONMENTAL CONSULTANTS

904 Powers Road **Woodstock, Illinois 60098** **Telephone: 815-236-5633** **Email: wkreznor@wrksoiltesting.com**

NAME: Storage of America c/o Thomas Fitzpatrick, PE, VP of Development
JOB NO.: SWM-MC23001
ADDRESS: 4225 W. 62nd Street Indianapolis, IN 46268
TELEPHONE: 616-209-2162 **TEST DATE:** 12-19-2023

PROPERTY LOCATION: 3.96-acre parcel, proposed Storage of America facility; part of SE ¼ Sec. 31, T. 44N., R. 8E., City of Crystal Lake, McHenry County, Illinois; vacant @ No. 439 E. Terra Cotta Avenue

PIN: 14-31-401-003
SAMPLE NO.: SWM-1 **SLOPE (%):** 1-2 **SOIL DESCRIPTION by:** W. Kreznor

DEPTH (ft)	DESCRIPTION	ESTIMATED PERMEABILITY (in/hr)
0-1.1	Very dark brown (10YR 2/2) loam; moderate medium granular structure; friable	Moderate (0.6-2)
1.1-1.6	Brown (10YR 4/3) clay loam; moderate very fine and fine subangular blocky structure; many very dark grayish brown (10YR 3/2) organic coatings; friable	Moderate (0.6-2)
1.6-2.8	Dark yellowish brown (10YR 4/4) clay loam; moderate fine and medium subangular blocky structure; common brown (10YR 4/3) clay coatings; friable	Moderate (0.6-2)
2.8-3.2	Dark brown (7.5YR 3/4) and brown (7.5YR 4/4) loam; weak medium subangular blocky structure; friable	Moderate (0.6-2)
3.2-4.1	Strong brown (7.5YR 4/6 and 5/6) loamy sand; single grain; loose; about 8-12% clay (< 0.002mm); about 75-85% sand (0.05-2mm)	Rapid (6-20)
4.1-5.8	Light yellowish brown (10YR 6/4) and brownish yellow (10YR 6/6) loamy very fine sand; common yellowish brown (10YR 5/6) redox concentrations; massive; very friable; 8-12% clay; about 75-80% sand	Moderately rapid (2-6)
5.8-7.3	Yellowish brown (10YR 5/4) and light yellowish brown (10YR 6/4) stratified loamy very fine sand, fine sand, and silt loam; common yellowish brown (10YR 5/6) redox concentrations; common gray (10YR 6/1) redox depletions; massive; friable to loose; about 15-20% clay; about 50-50% sand	Moderate (0.6-2)

SOIL CLASSIFICATION: Typic Argiudolls; fine-loamy (Jasper 440A)
ESTIMATED DEPTH TO SEASONAL HIGH GROUNDWATER TABLE (ft): 5.8
DEPTH TO OBSERVED GROUNDWATER (IN.): None to 7.3

REMARKS: Sample No. SWM-1 is in the lower part of the test area on the footslope near the head of an upland drainage swale. The soil formed in loamy and sandy glacial outwash sediments.



William R. Kreznor, CPSC, President
William R. Kreznor & Associates, Inc.
Certified Professional Soil Classifier (ISCA) No. 20

CITY of CRYSTAL LAKE SOIL BORING REPORT for STORMWATER MANAGEMENT

WILLIAM R. KREZNOR & ASSOCIATES, INC.
SOIL and ENVIRONMENTAL CONSULTANTS

904 Powers Road **Woodstock, Illinois 60098** **Telephone: 815-236-5633** **Email: wkreznor@wrksoiltesting.com**

NAME: Storage of America c/o Thomas Fitzpatrick, PE, VP of Development
JOB NO.: SWM-MC23001
ADDRESS: 4225 W. 62nd Street Indianapolis, IN 46268
TELEPHONE: 616-209-2162 **TEST DATE:** 12-19-2023

PROPERTY LOCATION: 3.96-acre parcel, proposed Storage of America facility; part of SE ¼ Sec. 31, T. 44N., R. 8E., City of Crystal Lake, McHenry County, Illinois; vacant @ No. 439 E. Terra Cotta Avenue

PIN: 14-31-401-003
SAMPLE NO.: SWM-2 **SLOPE (%):** 4-5 **SOIL DESCRIPTION by:** W. Kreznor

DEPTH (ft)	DESCRIPTION	ESTIMATED PERME-ABILITY (in/hr)
0-0.3	Very dark grayish brown (10YR 3/2) clay loam; moderate very fine subangular blocky structure and moderate medium granular; friable	Moderate (0.6-2)
0.3-1.8	Brown (7.5YR 4/4) clay loam; moderate fine subangular blocky structure; common brown (7.5YR 4/3) clay coatings; about 2-5% gravel (2-76mm); friable	Moderate (0.6-2)
1.8-2.4	Strong brown (7.5YR 4/6 and 5/6) sandy loam; weak medium subangular blocky structure; friable; very friable	Moderately rapid (2-6)
2.4-3.1	Dark yellowish brown (10YR 4/4) and yellowish brown (10YR 5/4) stratified loamy Fine sand and fine sandy loam; common yellowish brown (10YR 5/6) redox concentrations; weak medium and coarse subangular blocky structure; very friable; about 10-15% clay (< 0.002mm); about 65-80% sand (0.05-2mm)	Moderately rapid (2-6)
3.1-7.3	Yellowish brown (10YR 5/4) and light yellowish brown (10YR 6/4) stratified loamy very fine sand, very fine sandy loam, and silt loam; common yellowish brown (10YR 5/6) concentrations; common gray (10YR 6/1) redox depletions beginning at a depth of 4.7 feet; ; massive; friable to very friable; about 15-20% clay; about 50-50% sand	Moderate (0.6-2)

SOIL CLASSIFICATION: Typic Hapludalfs; fine-loamy (Martinsville 570B)
ESTIMATED DEPTH TO SEASONAL HIGH GROUNDWATER TABLE (ft): 4.7
DEPTH TO OBSERVED GROUNDWATER (IN.): 7.2

REMARKS: Sample No. SWM-2 is in the lower part of the test area on the footslope near the head of an upland drainage swale. The soil formed in loamy and sandy glacial outwash sediments.

William R. Kreznor, CPSC, President
William R. Kreznor & Associates, Inc.
Certified Professional Soil Classifier (ISCA) No. 20

WILLIAM R. KREZNOR ISCA No. 20 CERTIFIED PROFESSIONAL SOIL CLASSIFIER EXPIRES 4/1/2024

CITY of CRYSTAL LAKE SOIL BORING REPORT for STORMWATER MANAGEMENT

WILLIAM R. KREZNOR & ASSOCIATES, INC.
SOIL and ENVIRONMENTAL CONSULTANTS

904 Powers Road **Woodstock, Illinois 60098** **Telephone: 815-236-5633** **Email: wkreznor@wrksoiltesting.com**

NAME: Storage of America c/o Thomas Fitzpatrick, PE, VP of Development
JOB NO.: SWM-MC23001
ADDRESS: 4225 W. 62nd Street Indianapolis, IN 46268
TELEPHONE: 616-209-2162 **TEST DATE:** 12-19-2023

PROPERTY LOCATION: 3.96-acre parcel, proposed Storage of America facility; part of SE ¼ Sec. 31, T. 44N., R. 8E., City of Crystal Lake, McHenry County, Illinois; vacant @ No. 439 E. Terra Cotta Avenue

PIN: 14-31-401-003
SAMPLE NO.: SWM-3 **SLOPE (%):** 4-5 **SOIL DESCRIPTION by:** W. Kreznor

DEPTH (ft)	DESCRIPTION	ESTIMATED PERME-ABILITY (in/hr)
0-1.2	Very dark grayish brown (10YR 3/2) silt loam; moderate medium granular structure and moderate very fine subangular blocky; friable	Moderate (0.6-2)
1.2-3.2	Dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; friable; common brown (10YR 4/3) clay coatings	Moderate (0.6-2)
3.2-4.7	Dark yellowish brown (10YR 4/4) clay loam; common yellowish brown (10YR 5/6) Redox concentrations; moderate medium subangular blocky structure; friable; common brown (10YR 4/3) clay coatings	Moderate (0.6-2)
4.7-5.4	Dark yellowish brown (10YR 4/6) and yellowish brown (10YR 5/6) sandy loam; weak medium and coarse subangular blocky structure; very friable; about 10-15% clay (< 0.002mm); about 65-80% sand (0.05-2mm)	Moderately rapid (2-6)
5.4-6.6	Yellowish brown (10YR 5/4) and pale brown (10YR 6/3) sand; single grain; loose; < 10% clay; about 85-95% sand	Rapid (6-20))
6.6-12.0	Yellowish brown (10YR 5/4 and 5/6) and pale brown (10YR 6/3) stratified gravelly to cobbly sand; single grain; loose; < 10% clay; about 85-95% sand; about 25-45% gravel (2-76mm) and cobbles (76-250mm) (by volume)	Rapid (6-20)

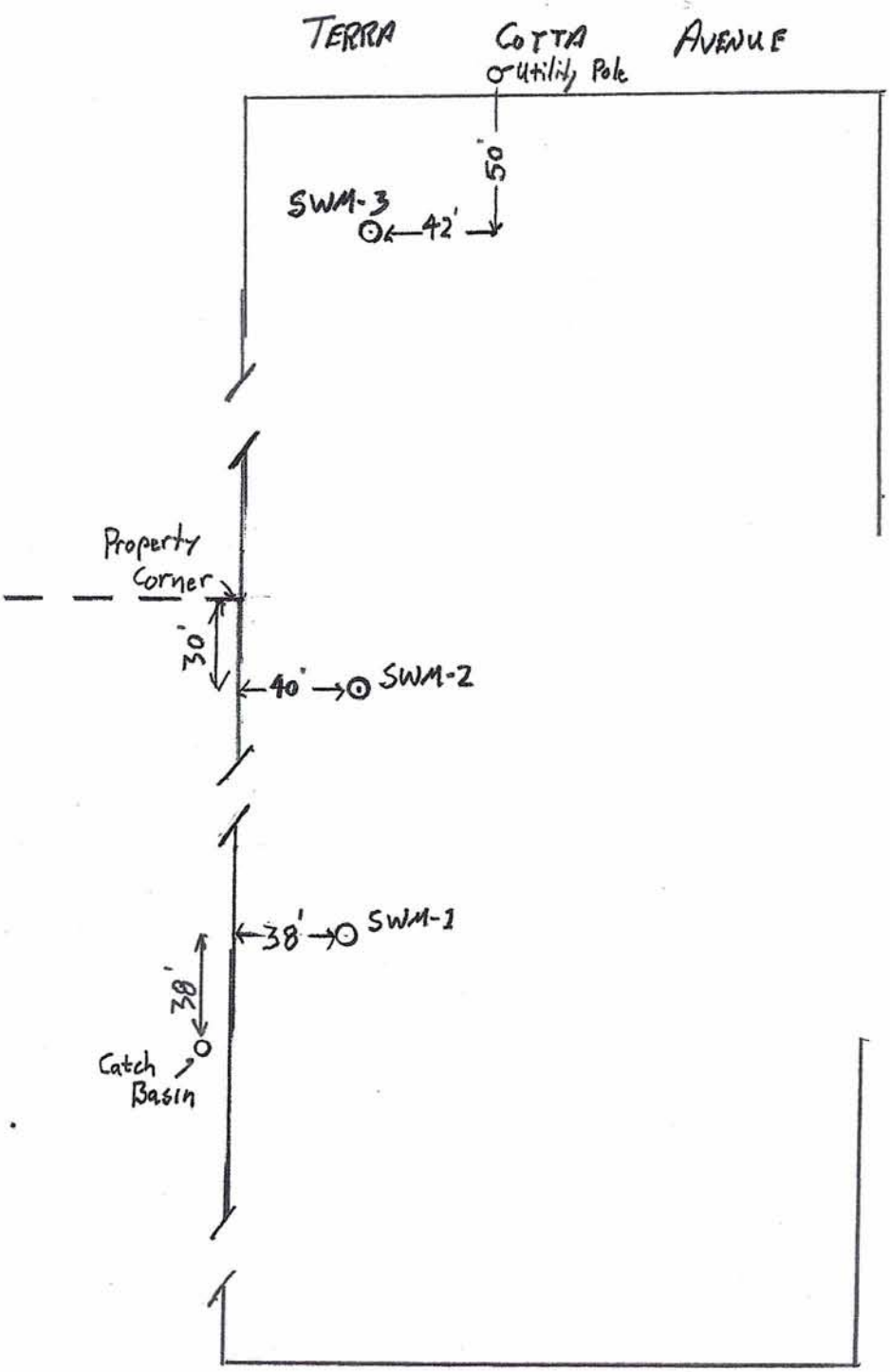
SOIL CLASSIFICATION: Typic Argiudolls; fine-silty (Waupecan 369B)
ESTIMATED DEPTH TO SEASONAL HIGH GROUNDWATER TABLE (ft): >12.0
DEPTH TO OBSERVED GROUNDWATER (IN.): None to 12.0

REMARKS: Sample No. SWM-3 is in the higher part of the test area on the sideslope of a knoll. The soil formed in silty sediments and in the underlying loamy and sandy glacial outwash sediments.

William R. Kreznor, CPSC, President
William R. Kreznor & Associates, Inc.
Certified Professional Soil Classifier (ISCA) No. 20

WILLIAM R. KREZNOR ISCA No. 20 EXPIRES 2/11/24 CERTIFIED PROFESSIONAL SOIL CLASSIFIER

3.96-acre parcel
Proposed Storage of America facility
Part of SE ¼ Sec. 31, T. 44N., R. 8E., City of Crystal Lake, McHenry County, Illinois
Vacant @ No. 439 E. Terra Cotta Avenue
PIN: 14-31-401-003
Job No. SWM-MC23001
19 December 2023



SOIL BORING LOCATIONS

N
1 inch = 60 feet

WILLIAM R. KREZNOR
ISCA
No. 20
EXPIRES
2/1/2024
CERTIFIED PROFESSIONAL SOIL CLASSIFIER

Gresham Smith

APPENDIX I: SWALE ANALYSIS

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 27 2024

Swale A

Triangular

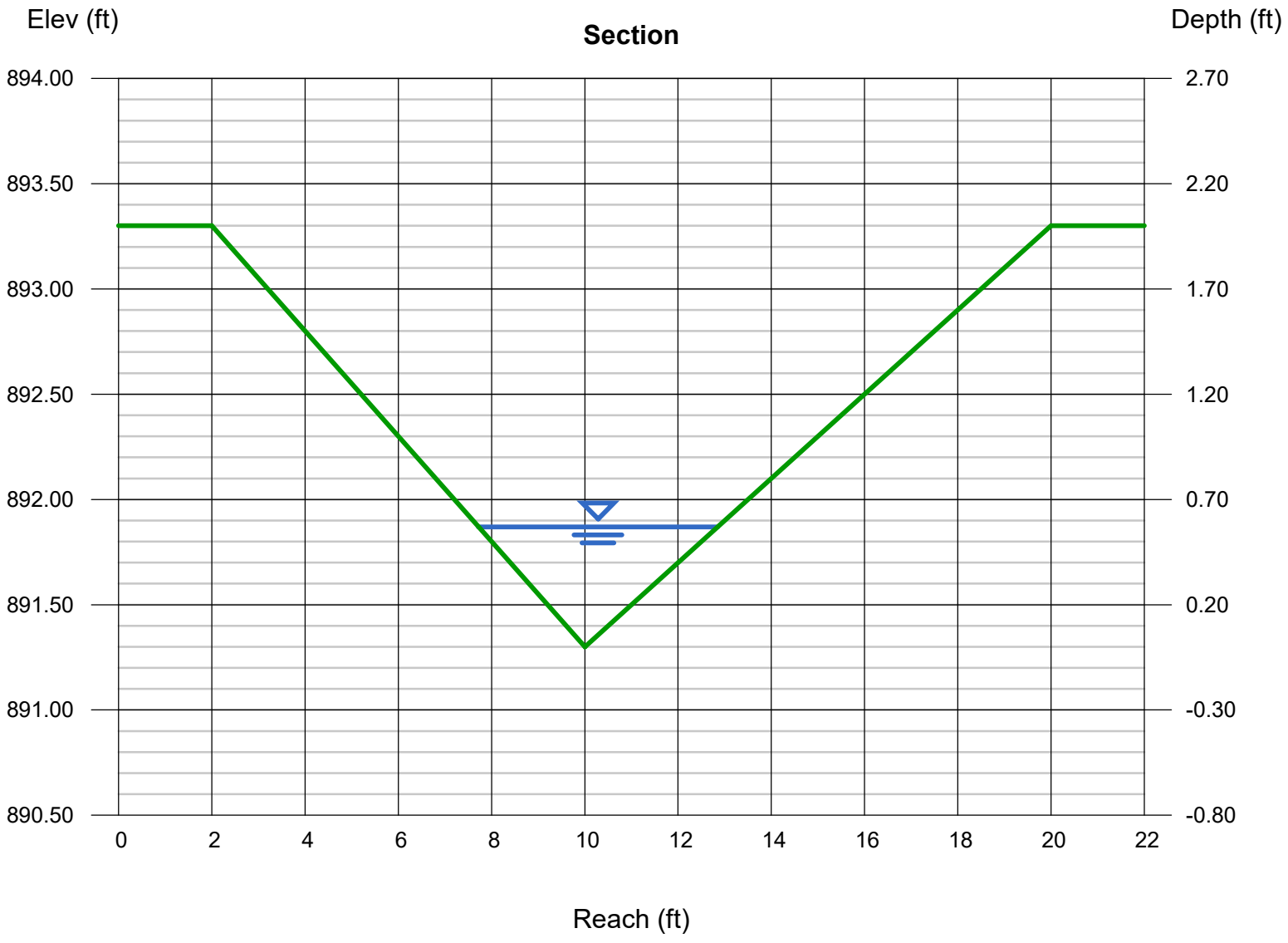
Side Slopes (z:1)	= 4.00, 5.00
Total Depth (ft)	= 2.00
Invert Elev (ft)	= 891.30
Slope (%)	= 3.00
N-Value	= 0.150

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.03

Highlighted

Depth (ft)	= 0.57
Q (cfs)	= 1.030
Area (sqft)	= 1.46
Velocity (ft/s)	= 0.70
Wetted Perim (ft)	= 5.26
Crit Depth, Yc (ft)	= 0.32
Top Width (ft)	= 5.13
EGL (ft)	= 0.58



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 27 2024

Swale B

Triangular

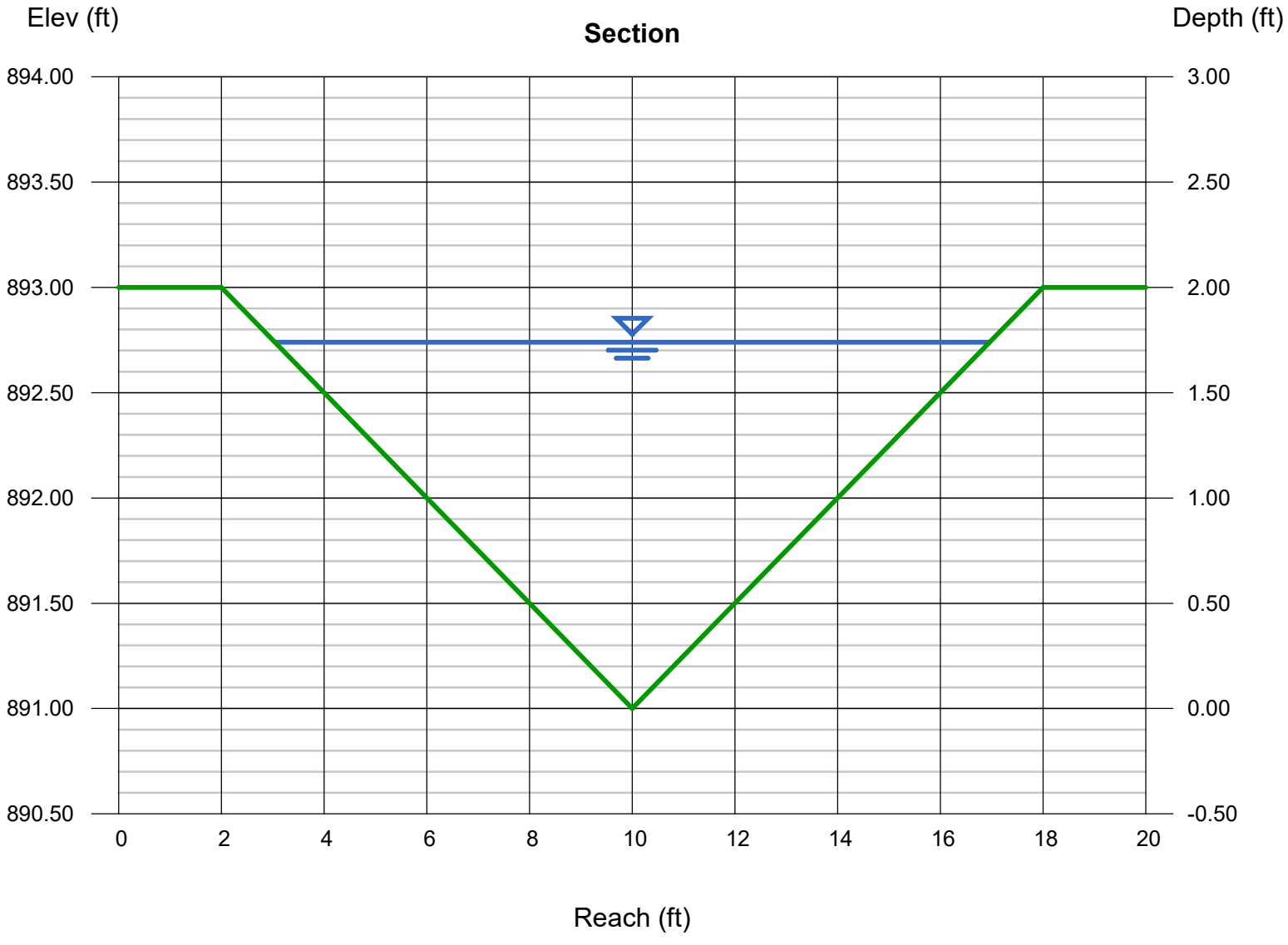
Side Slopes (z:1)	= 4.00, 4.00
Total Depth (ft)	= 2.00
Invert Elev (ft)	= 891.00
Slope (%)	= 1.00
N-Value	= 0.150

Calculations

Compute by:	Known Q
Known Q (cfs)	= 10.56

Highlighted

Depth (ft)	= 1.74
Q (cfs)	= 10.56
Area (sqft)	= 12.11
Velocity (ft/s)	= 0.87
Wetted Perim (ft)	= 14.35
Crit Depth, Yc (ft)	= 0.85
Top Width (ft)	= 13.92
EGL (ft)	= 1.75



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 27 2024

Swale C

Triangular

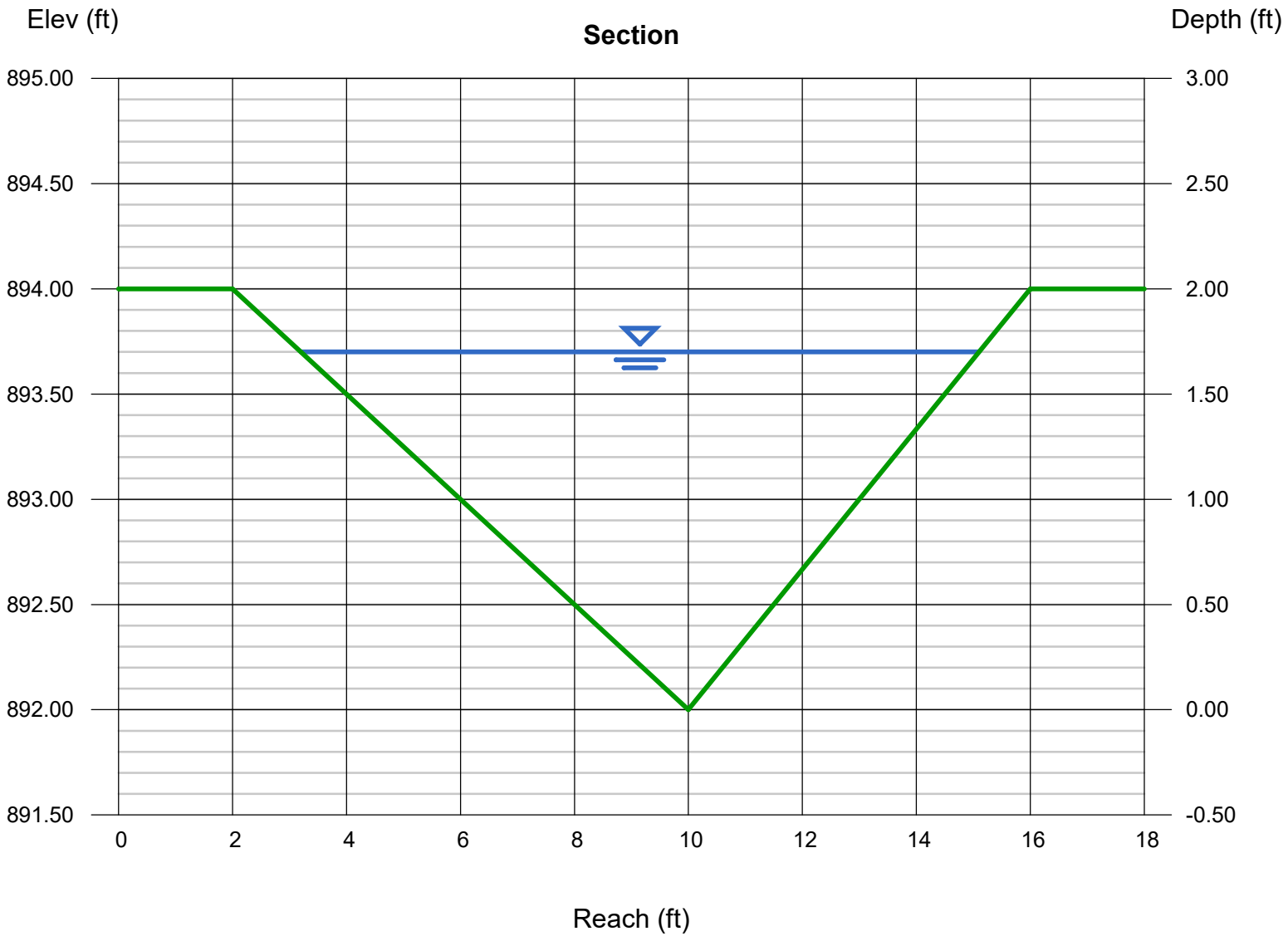
Side Slopes (z:1)	= 4.00, 3.00
Total Depth (ft)	= 2.00
Invert Elev (ft)	= 892.00
Slope (%)	= 1.50
N-Value	= 0.150

Calculations

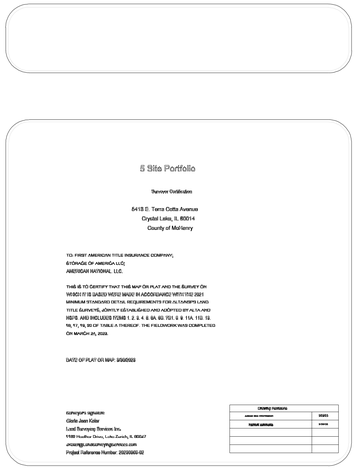
Compute by:	Known Q
Known Q (cfs)	= 10.56

Highlighted

Depth (ft)	= 1.70
Q (cfs)	= 10.56
Area (sqft)	= 10.11
Velocity (ft/s)	= 1.04
Wetted Perim (ft)	= 12.39
Crit Depth, Yc (ft)	= 0.90
Top Width (ft)	= 11.90
EGL (ft)	= 1.72




STORAGE of AMERICA
STORAGE of AMERICA



5 Site Portfolio

Tenmore Ventilation

6418 E. Terra Cotta Avenue
Crystal Lakes, IL 60014
County of McHenry

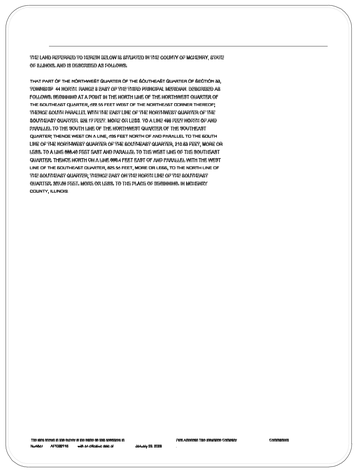
TO: FIRST AMERICAN TITLE INSURANCE COMPANY;
EXTRAVAGE OF AMERICA, LLC;
AMERIDIAN NATIONAL, LLC.

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 1, 2, 3, 4, 6, 6A, 6B, 7(1), 8, 9, 11A, 11B, 13, 16, 17, 18, 20 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON MARCH 24, 2023.

DATE OF PLAT OR MAP: 3/29/2023

LEGEND SYMBOLS	
[illegible]	[illegible]
TEXT DETAILS	**LEGEND**

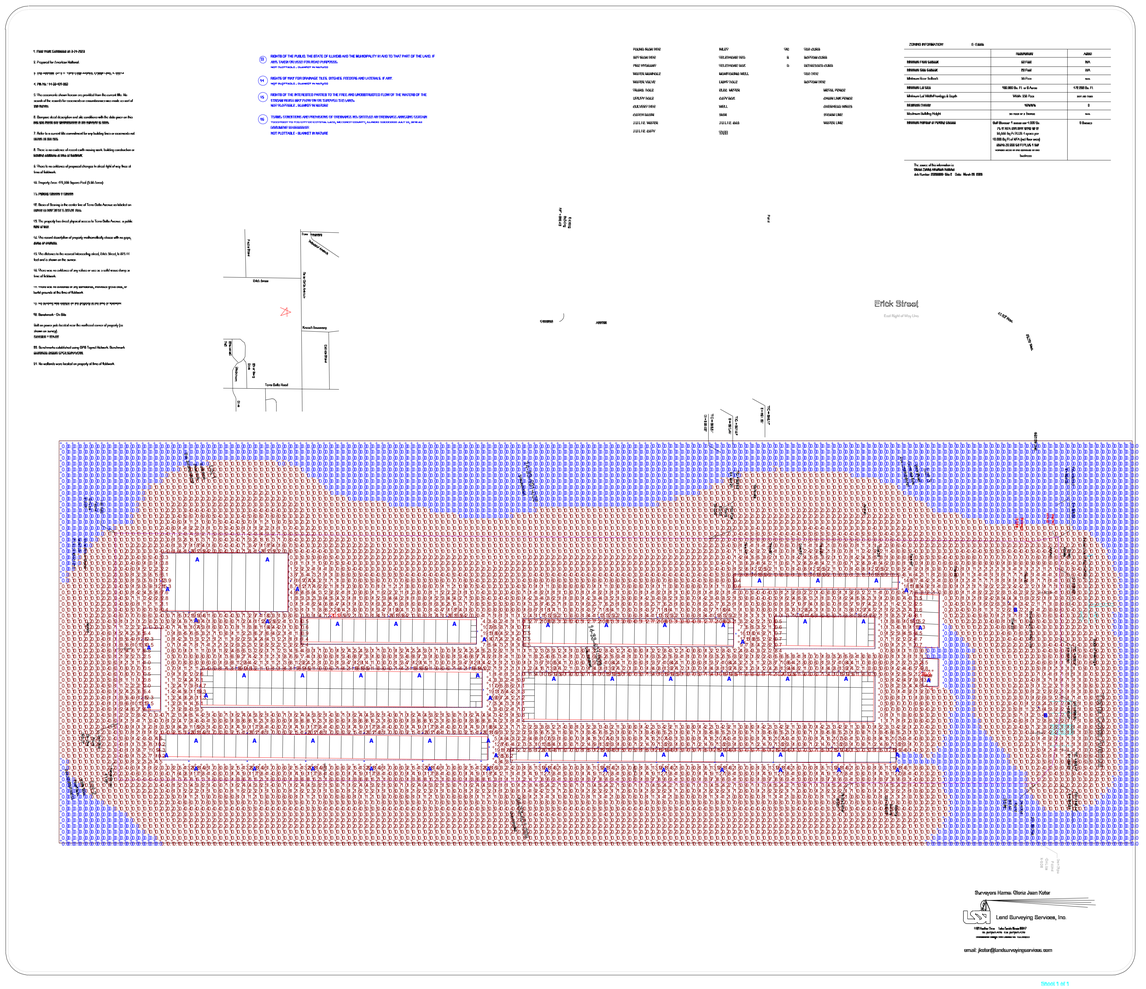
Surveyor's signature:
Gloria Jean Keller
Land Surveying Services Inc.
1100 Hudson Drive, Lake Zurich, IL 60047
Project Reference Number: 20230603-02



THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF MCHENRY, STATE OF ILLINOIS, AND IS DESCRIBED AS FOLLOWS:

THAT PART OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 36, TOWNSHIP 44 NORTH, RANGE 8 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS, BEGINNING AT A POINT IN THE NORTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER, 499.55 FEET WEST OF THE NORTHEAST CORNER THEREOF; THENCE SOUTH PARALLEL WITH THE EAST LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER, 528.77 FEET; MORE OR LESS, TO A LINE 466 FEET NORTH OF AND PARALLEL TO THE SOUTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER; THENCE WEST ON A LINE, 499 FEET NORTH OF AND PARALLEL TO THE SOUTH LINE OF THE NORTHWEST QUARTER OF THE SOUTHEAST QUARTER, 210.63 FEET, MORE OR LESS, TO A LINE 698.48 FEET EAST AND PARALLEL TO THE WEST LINE OF THE SOUTHEAST QUARTER; THENCE NORTH ON A LINE 698.4 FEET EAST OF AND PARALLEL WITH THE WEST LINE OF THE SOUTHEAST QUARTER, 805.54 FEET, MORE OR LESS, TO THE NORTH LINE OF THE SOUTHEAST QUARTER; THENCE EAST ON THE NORTH LINE OF THE SOUTHEAST QUARTER, 209.08 FEET, MORE OR LESS, TO THE PLACE OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS.

THIS SURVEY IS NOT VALID IF ANY OF THE FOLLOWING IS NOT SHOWN: Number ACTUARY'S seal or facsimile thereof Date July 29, 2020 FOR ADDITIONAL TEXT DESCRIPTIONS CONTAINED


1. FIELD WORK CONDUCTED ON 3-24-2023
2. Prepared for: Gretchen Holland
3. SITE PHOTOS: UTILITY TYPE FIELD PAINTS, FLAGGING, ETC.: NONE
4. PIN No.: 14-36-451-002
5. The easements shown hereon are provided from the current IRL. No search of the records for easements or encumbrances was made as part of this survey.
6. Surveyor did not investigate and did not confirm with the Julie one-call the IRL/ALTA/NSPS LAND TITLE SURVEY
7. There is no evidence of recent earth moving work, building construction or BUILDING ADDITIONS OBSERVED at the time of fieldwork.
8. There is no evidence of proposed changes in street right of way lines of the Fieldwork.
10. Property Area: 475,338 Square Feet (10.91 Acres)
11. PARKING SPACES IN GROSS
12. Bearing of the basis of bearing is the assumed bearing of the Terra Cotta Avenue as indicated on GRID NORTH PER U.S. SURVEY this.
13. The property has direct physical access to Terra Cotta Avenue, a public WAY OF USE.
14. The record description of property conformed directly above with no gaps, GAPS, OF OVERLAPS.
15. The distance to the nearest intersecting street, Dole Street, is 875.41 feet and is shown on the survey.
16. There are no evidence of any cemetery or cemetery grave sites, or burial grounds on the lines of fieldwork.
17. THERE ARE NO evidence of any substance, resource gross area, or burial grounds on the lines of fieldwork.
18. THE SURVEYED PROPERTY IS SITUATED IN FLOOD ZONE "X" (UNSHADED)
19. Benchmark - On Site
Bolt on power pole located near the northeast corner of property (as shown on survey)
ELEVATION = 974.69
20. Benchmarks established using GPS Topcon Network. Benchmark ELEVATION: ASSUMED ELEVATION SYSTEM
21. No wetlands were located on property at time of fieldwork.

(9) RIGHTS OF THE PUBLIC, THE STATE OF ILLINOIS AND THE MUNICIPALITY IN AND TO THAT PART OF THE LAND, IF ANY, TAKEN OR USED FOR ROAD PURPOSES.
NOT PLOTTABLE - ELEMENT IN NATURE

(14) RIGHTS OF WAY FOR DRAINAGE TILES, DITCHES, FEEDERS AND LATERALS, IF ANY.
NOT PLOTTABLE - ELEMENT IN NATURE

(15) MEMORIALS OF THE RECORDED PATENT TO THE FIELD AND UNDERSTANDING FLOW OF THE WATERS OF THE STREAM WHICH MAY FLOW ON OR SURROUND SAID LAND.
NOT PLOTTABLE - ELEMENT IN NATURE

(16) TERMS, CONDITIONS AND PROVISIONS OF INSTRUMENT NO. 2015R0021 RE: DISTRICT AND EASEMENTS, AMELIORATIONS AND OTHER PURPOSES AS CONTAINED IN THE ELECTRIC DISTRIBUTION AGREEMENT DATED JANUARY 1, 2015 BETWEEN COMMONWEALTH EDISON COMPANY AND ALLIANCE DISTRIBUTION AGENCY, ILLINOIS, A MUNICIPAL AGENCY AND JOINT ACTION AGENCY ORGANIZED UNDER THE LAWS OF THE STATE OF ILLINOIS, AND THE RIGHTS OF ALL PERSONS CLAIMING BY, THROUGH OR UNDER SAID INSTRUMENT.
NOT PLOTTABLE - ELEMENT IN NATURE

FOUND IRON PIPE	MEAS.	YRC	TELE. CABLE
SET IRON PIPE	R	RECORD DATA	
FIRE HYDRANT	R	METES AND BOUNDS DATA	
WATER MANHOLE		TELE. PED.
WATER VALVE		WATER PEDS
TRAFFIC SIGNAL		ELEC. METER		METAL POST
UTILITY POLE		GUY WIRE		CHAIN LINK FENCE
ASPHALT DRIVE		WELL		OVERHEAD WIRES
CONCRETE SLAB		SIGN		STUCCO UNIT
2.0 X 2.0 WATER		2.0 X 2.0 GAS		WATER LINE
2.0 X 2.0 ELEC.		TREE

ZONING INFORMATION	E-1 Zone	
	Requirements	**Actual**
Minimum Front Setback	30 Feet	30ft
Minimum Side Setback	30 Feet	30ft
Minimum Rear Setback	50 Feet	50ft
Minimum Street Setback	50 Feet	50ft
Minimum Lot Area	10 Acres	10.91 Ac.
Minimum Lot Width/Frontage At Depth	660ft. 330 Feet	660ft.
Maximum Height	45 Feet	0
Maximum Building Height	no more than 3 Stories	two
Minimum Number of Parking Spaces	Self Storage: 1 space per 1,000 Sq. Ft. Of G.F.A. (27,000 SF/1,000 SF = 27) Office: Sq.Ft. Of G.F.A. 1 space per 10,000 Sq.Ft. of G.F.A. (Per code) (Office 27,000 SF/10,000 SF = 3) Total Parking Spaces Required = 30 Spaces	5 Spaces

The names of the subcontractors are:
Glass Safety Overhead Installer
AA Number: 2000000- Dec 5 Date: March 09 2020

Terra Cotta Avenue
Dole Street
Terra Cotta Road
Parcel Frontage
Parcel Frontage
Parcel Frontage