

TR Capital

PO Box 75
Sussex, WI 53089

Owners:

Jon Then
Heidi Then
Rosie Roberts
Eric Roberts

Planning Commission,

TR Capital, LLC is excited to present the following documents for your review regarding the proposed development of the property located at W21N11588 Appleton Ave.

The following documents have been provided.

**Existing Conditions Plan
Proposed Site Plan
Grading Plan
Erosion Control Plan
Erosion Control Details
Storm Water Management Plans and Details
Landscape Plan
Lighting Plan
Construction Notes
Building Plans for the 3 Buildings.**

**Thanks for your time and support.
TR Capital, LLC**

I HAVE REVIEWED THE PRELIMINARY DRAWINGS.

CUSTOMER SIGNATURE:

DATE:

I UNDERSTAND THAT CHANGES MAY BE NECESSARY PER CODE OR STRUCTURAL REQUIREMENTS

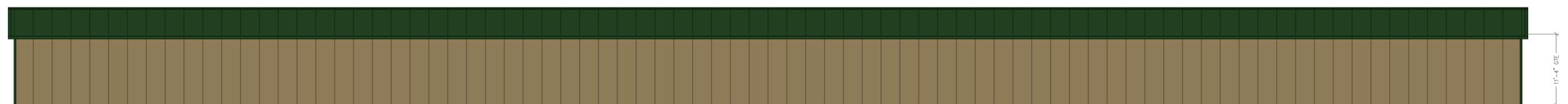
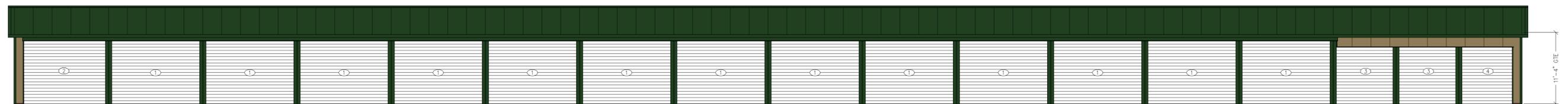
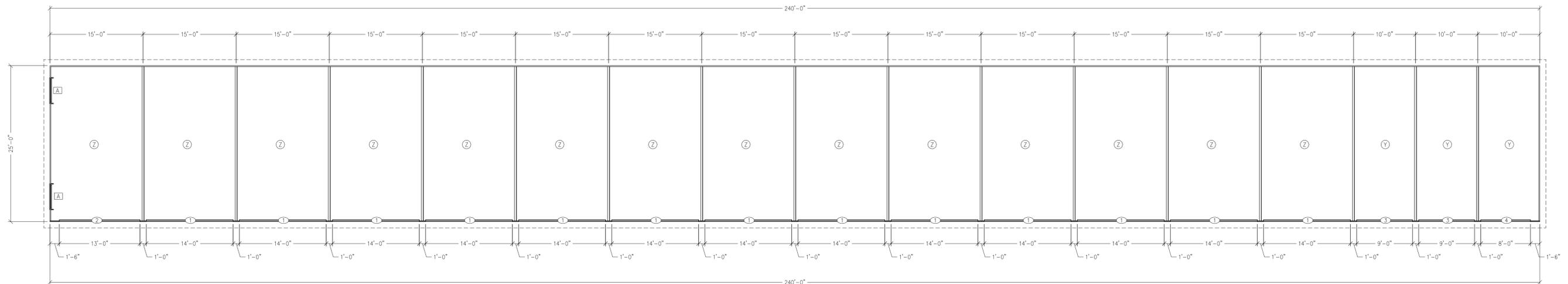
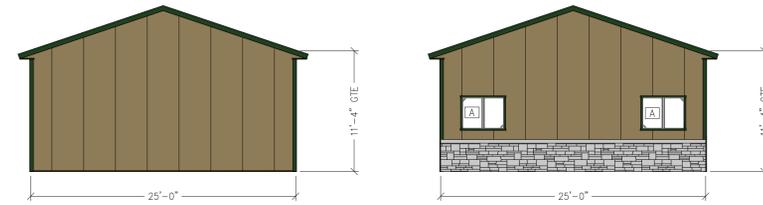
ALL DRAWINGS ARE INTELLECTUAL PROPERTY OF WALTERS BUILDINGS UNTIL SOLD

DOOR & WINDOW SCHEDULE

TAG	TYPE	QUANTITY
①	14'-0"x10'-0" ROLL UP DOOR OPENING	14
②	13'-0"x10'-0" ROLL UP DOOR OPENING	1
③	9'-0"x9'-0" ROLL UP DOOR OPENING	2
④	8'-0"x9'-0" ROLL UP DOOR OPENING	1
A	4'-0"x3'-0" HORIZONTAL SLIDE-BY WINDOW	2
⑦	15'x40' UNIT	14
⑧	10'x40' UNIT	3



REVISIONS:



OWNER:
JOHN THEN

PROJECT:
STORAGE

LOCATION:
GERMANTOWN, WI

SALES REP / DEALER:
MARSHALL WISTH

DRAWN BY:
JOHN SCHNEIDER JR

ESTIMATED BY:

LAST SAVED BY:
SCHNEIDER ON: 9/9/2021



JOB NUMBER:
P95-1590

SHEET NUMBER:

A

I HAVE REVIEWED THE PRELIMINARY DRAWINGS.

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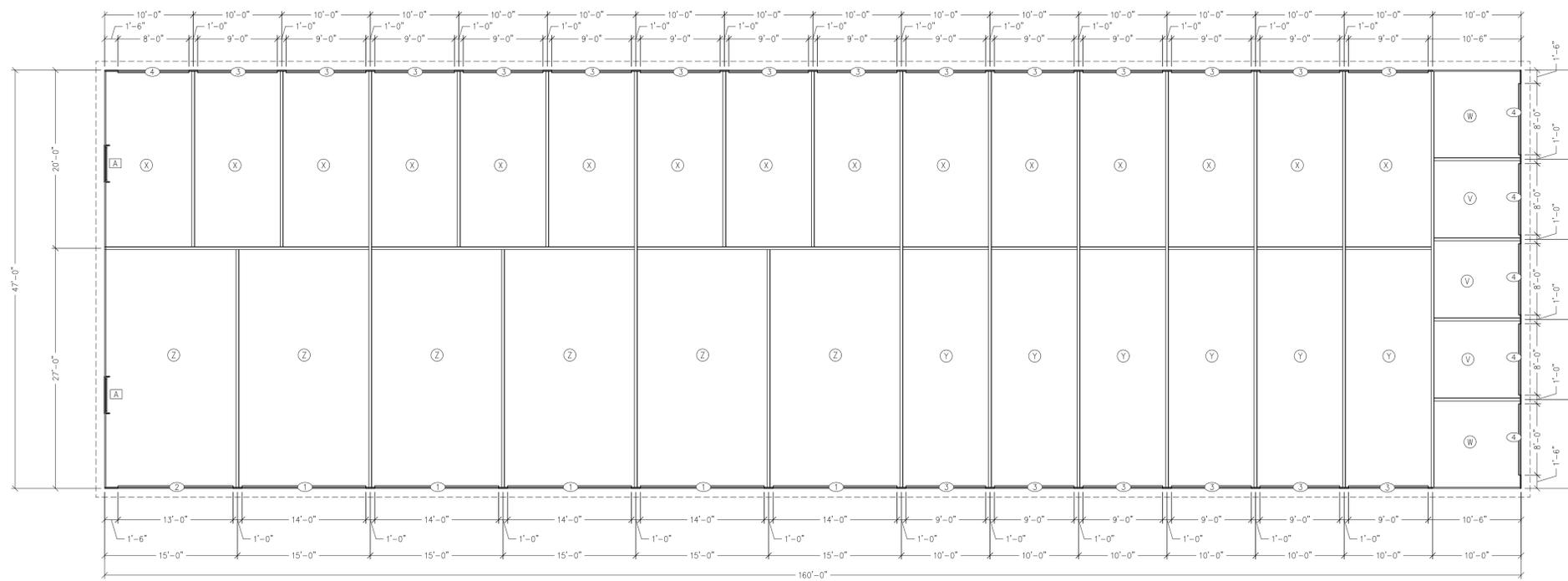
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DOOR & WINDOW SCHEDULE

TAG	TYPE	QUANTITY
①	14'-0"x10'-0" ROLL UP DOOR OPENING	5
②	13'-0"x10'-0" ROLL UP DOOR OPENING	1
③	9'-0"x9'-0" ROLL UP DOOR OPENING	20
④	8'-0"x9'-0" ROLL UP DOOR OPENING	6
Ⓐ	4'-0"x3'-0" HORIZONTAL SLIDE-BY WINDOW	2
⑦	15'x27' UNIT	6
⑧	10'x27' UNIT	6
⑨	10'x20' UNIT	15
Ⓜ	10'x10' UNIT	2
Ⓨ	9'x10' UNIT	3



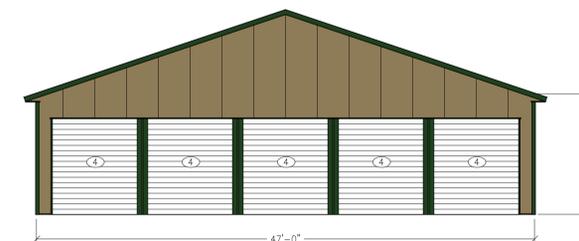
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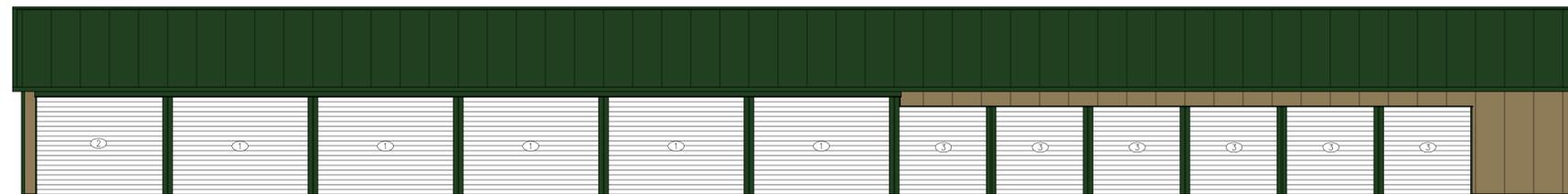
1 FRAMING PLAN
A3 SCALE: 1/8" = 1'-0"



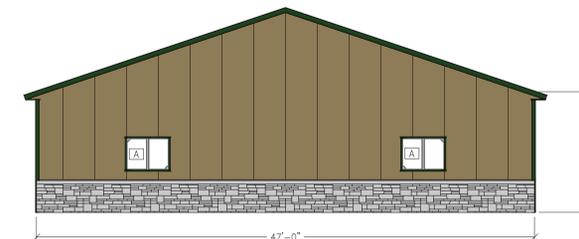
2 SOUTH SIDE ELEVATION
A3 SCALE: 1/8" = 1'-0"



3 EAST END ELEVATION
A3 SCALE: 1/8" = 1'-0"



4 NORTH SIDE ELEVATION
A3 SCALE: 1/8" = 1'-0"



5 WEST END ELEVATION
A3 SCALE: 1/8" = 1'-0"

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STORAGE

LOCATION:
GERMANTOWN, WI

SALES REP / DEALER:
MARSHALL WIRTH

DRAWN BY:
JOHN SCHNEIDER JR

ESTIMATED BY:

LAST SAVED BY:
SCHNEIDER ON: 9/9/2021

SCALE:
1/8" = 1'-0"
0 5 10

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P95-1590

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B

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DATE:

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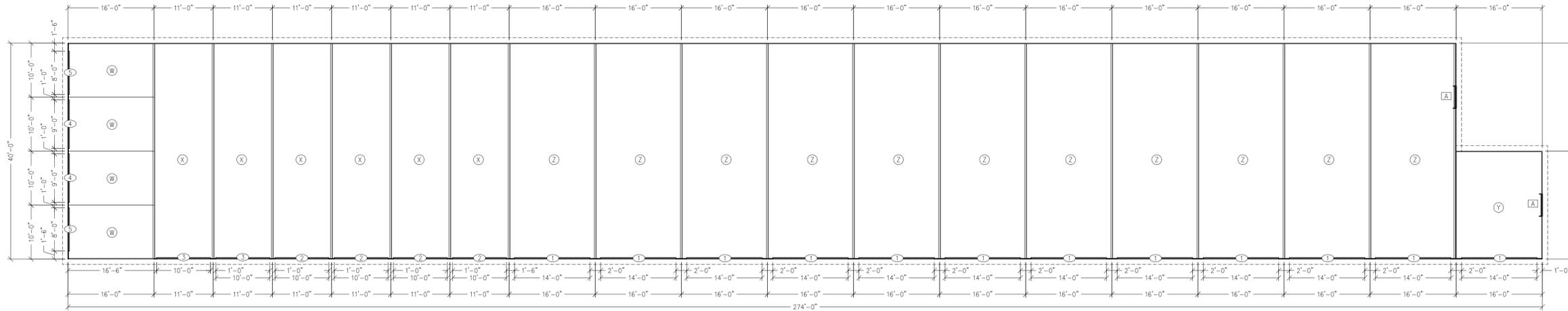
ALL DRAWINGS ARE INTELLECTUAL PROPERTY OF WALTERS BUILDINGS UNTIL SOLD

DOOR, WINDOW & UNIT SCHEDULE

TAG	TYPE	QUANTITY
①	14'-0" x 10'-0" ROLL UP DOOR FRAMED OPENING	12
②	10'-0" x 10'-0" ROLL UP DOOR FRAMED OPENING	4
③	10'-0" x 9'-0" ROLL UP DOOR FRAMED OPENING	2
④	9'-0" x 9'-0" ROLL UP DOOR FRAMED OPENING	2
⑤	8'-0" x 9'-0" ROLL UP DOOR FRAMED OPENING	2
A	4'-0" x 3'-0" HORIZONTAL SLIDE-BY WINDOW	2
Z	16' x 40' UNIT	11
Y	16' x 20' UNIT	1
X	11' x 40' UNIT	6
W	10' x 16' UNIT	4



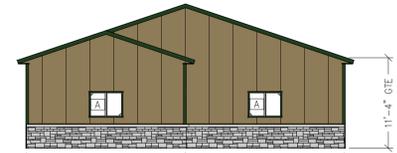
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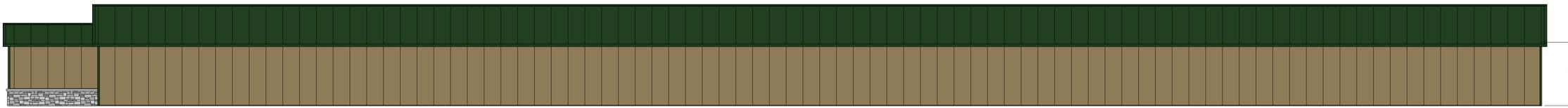
1 FRAMING PLAN
 A2 SCALE: 3/32" = 1'-0"



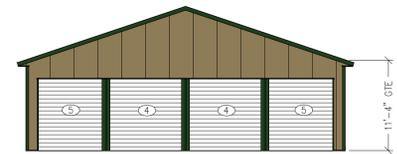
2 NORTH SIDE ELEVATION
 A2 SCALE: 3/32" = 1'-0"



3 WEST END ELEVATION
 A2 SCALE: 3/32" = 1'-0"



4 SOUTH SIDE ELEVATION
 A2 SCALE: 3/32" = 1'-0"



5 EAST END ELEVATION
 A2 SCALE: 3/32" = 1'-0"

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SCALE:

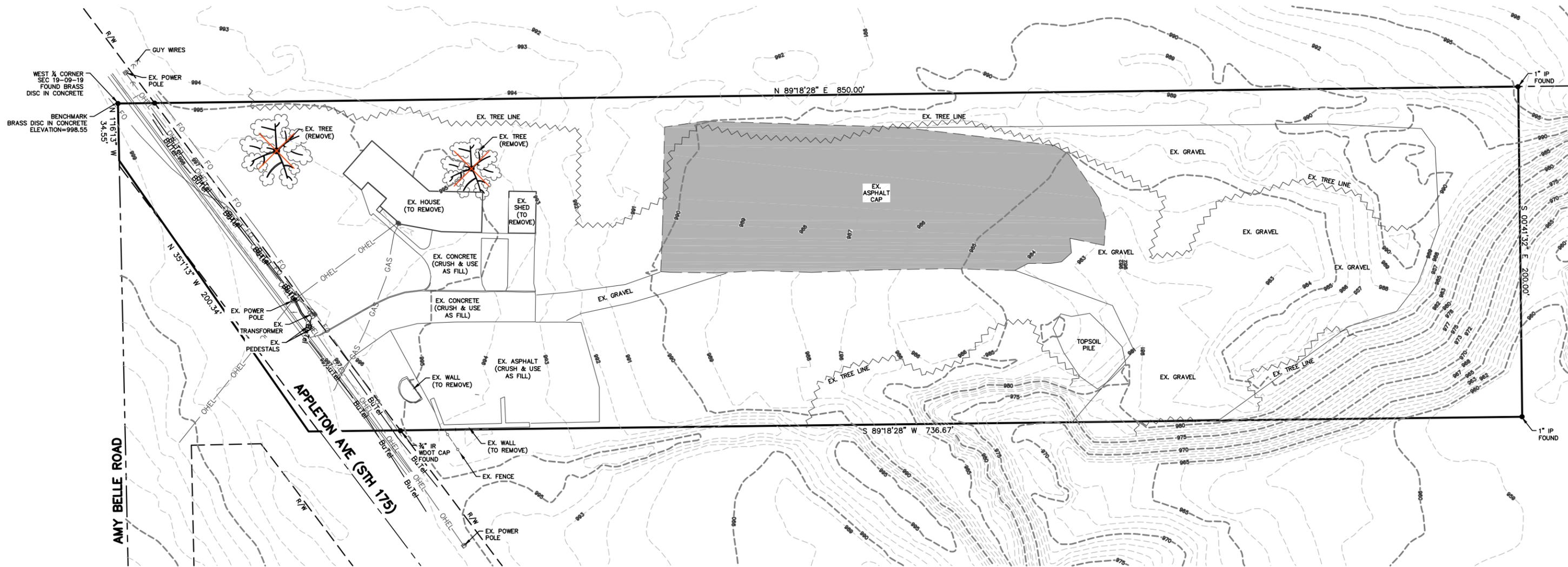
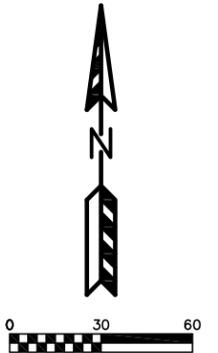
AS NOTED

JOB NUMBER:

P95-1590

SHEET NUMBER:

C



LEGEND:

--- 896 ---	- EXISTING MINOR CONTOUR.		- GAS METER.
--- 895 ---	- EXISTING MAJOR CONTOUR.		- GAS VALVE.
--- OHEL ---	- OVERHEAD ELECTRIC LINE.		- FIRE HYDRANT.
--- BuEI ---	- BURIED ELECTRIC LINE.		- POWER POLE.
--- BuTel ---	- BURIED TELEPHONE LINE.		- SANITARY SEWER MANHOLE.
--- FO ---	- FIBER OPTIC LINE.		- STORM SEWER MANHOLE.
--- GAS ---	- GAS LINE.		- STORM SEWER INLET.
--- SAN ---	- SANITARY SEWER MAIN OR LATERAL.		- TELEPHONE PEDESTAL.
--- WAT ---	- WATER MAIN OR SERVICE.		- TRANSFORMER.
=====	- STORM SEWER LINE.		- WATER VALVE.
	- ELECTRIC METER.		

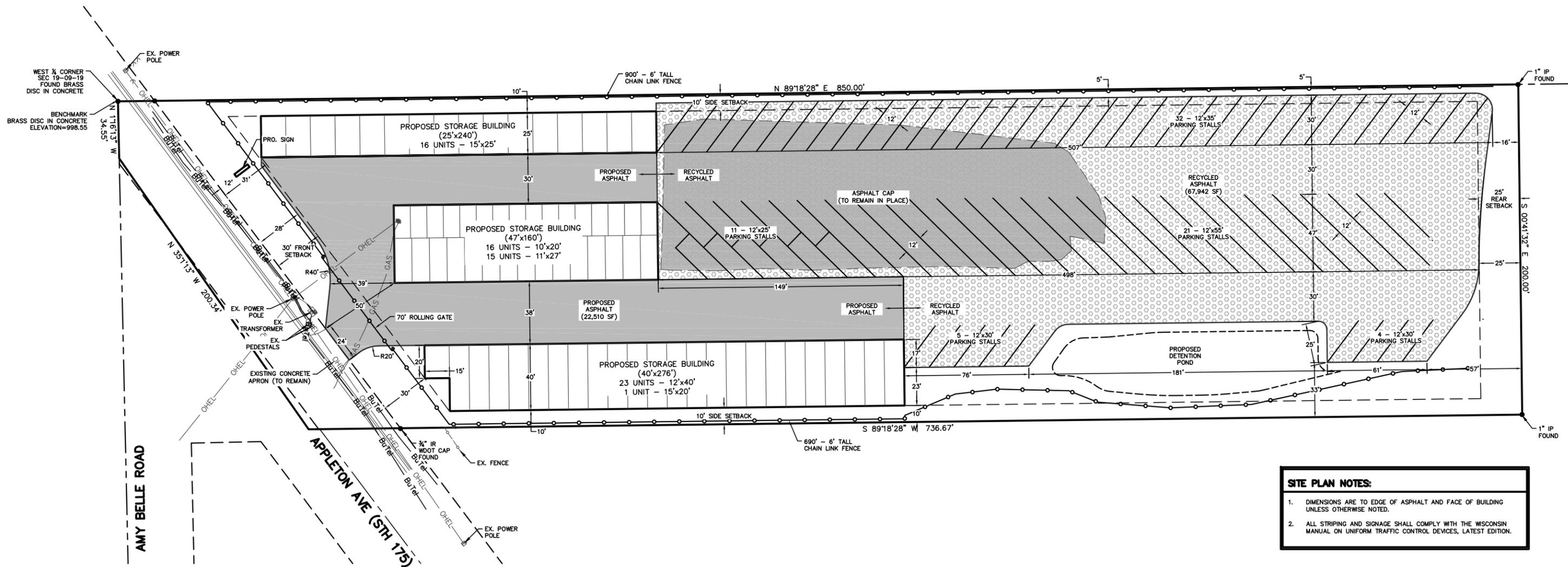
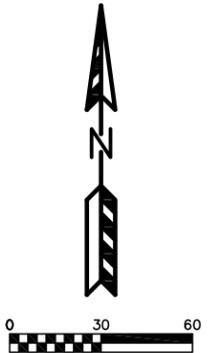
Existing Area Table	
Description	Area (sf)
Building	2,537
Concrete	4,543
Asphalt	28,532
Gravel	7,180
Total Impevious Area	42,792
Total Lot Area	150,873

APPLETON AVENUE STORAGE FACILITY
 EXISTING CONDITIONS PLAN
 DATED: SEPTEMBER 7, 2021

C-101

QUAM ENGINEERING, LLC
 Residential and Commercial Site Design Consultants

122 Wisconsin Street; West Bend, Wisconsin 53095
 Phone (262) 346-7800; www.quamengineering.com



SITE INFORMATION BLOCK

Site Address W219 N11588 Appleton Avenue
 Site acreage (total) 3.464 acres

Current Zoning M-1
 Setbacks Building/Pavement
 Front 30' / 10'
 Side 10' / 5'
 Rear 25' / 5'

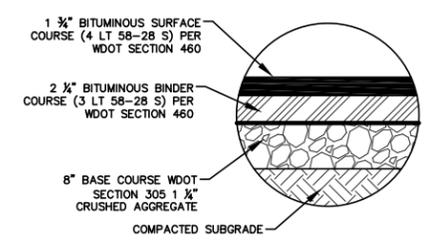
Maximum Percent Coverage 80%

Number of Outdoor Storage Stalls:

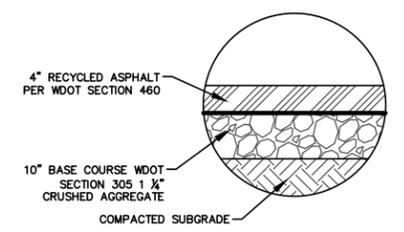
Stall Size	Stalls
12' x 20'	11
12' x 30'	9
12' x 35'	32
12' x 40'	21
Total	73

Proposed Area Table

Description	Area (sf)
Total Lot Area	150,873
Building	24,860
Asphalt	90,452
Total Impervious Area	115,312
% Impervious	76.4
Total Green Space	35,561
% Green Space	23.6



ASPHALT PAVEMENT SECTION



RECYCLED ASPHALT SECTION

SITE PLAN NOTES:

- DIMENSIONS ARE TO EDGE OF ASPHALT AND FACE OF BUILDING UNLESS OTHERWISE NOTED.
- ALL STRIPING AND SIGNAGE SHALL COMPLY WITH THE WISCONSIN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

PAVING LEGEND

- RECYCLED ASPHALT
- 10" CRUSHED AGGREGATE BASE COURSE
- 4" RECYCLED ASPHALT (2-2" LIFTS)
- 8" CRUSHED AGGREGATE BASE COURSE
- 2 1/4" ASPHALTIC BINDER 3 LT 58-28 S
- 1 3/4" ASPHALTIC SURFACE 4 LT 58-28 S

APPLETON AVENUE STORAGE FACILITY
 PROPOSED SITE PLAN
 DATED: SEPTEMBER 7, 2021

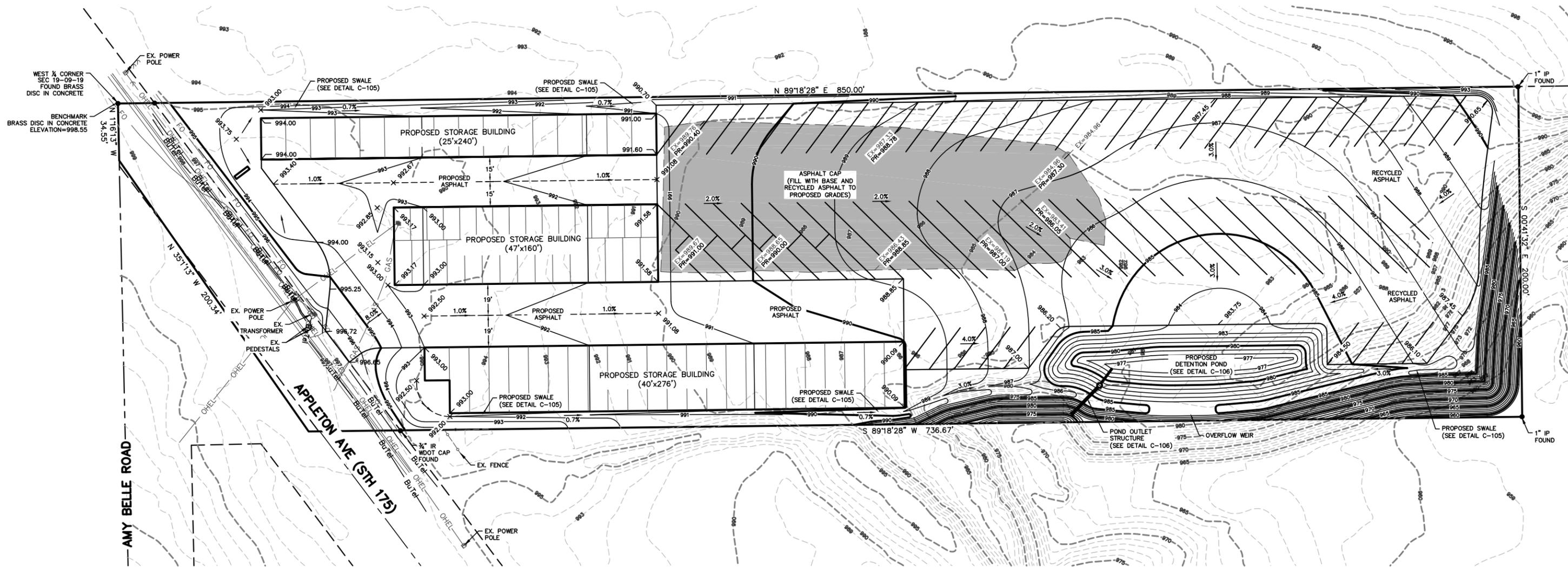
C-102

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LEGEND:

- - - 936 - - - EXISTING MINOR CONTOUR.
- - - 935 - - - EXISTING MAJOR CONTOUR.
- - - 936 - - - PROPOSED MINOR CONTOUR.
- - - 935 - - - PROPOSED MAJOR CONTOUR.
- EX=934.23 - EXISTING SPOT ELEVATION.
- 934.23 - PROPOSED SPOT ELEVATION.
- - - - - PROPOSED STORM SEWER.



APPLETON AVENUE STORAGE FACILITY
 GRADING PLAN
 DATED: SEPTEMBER 7, 2021

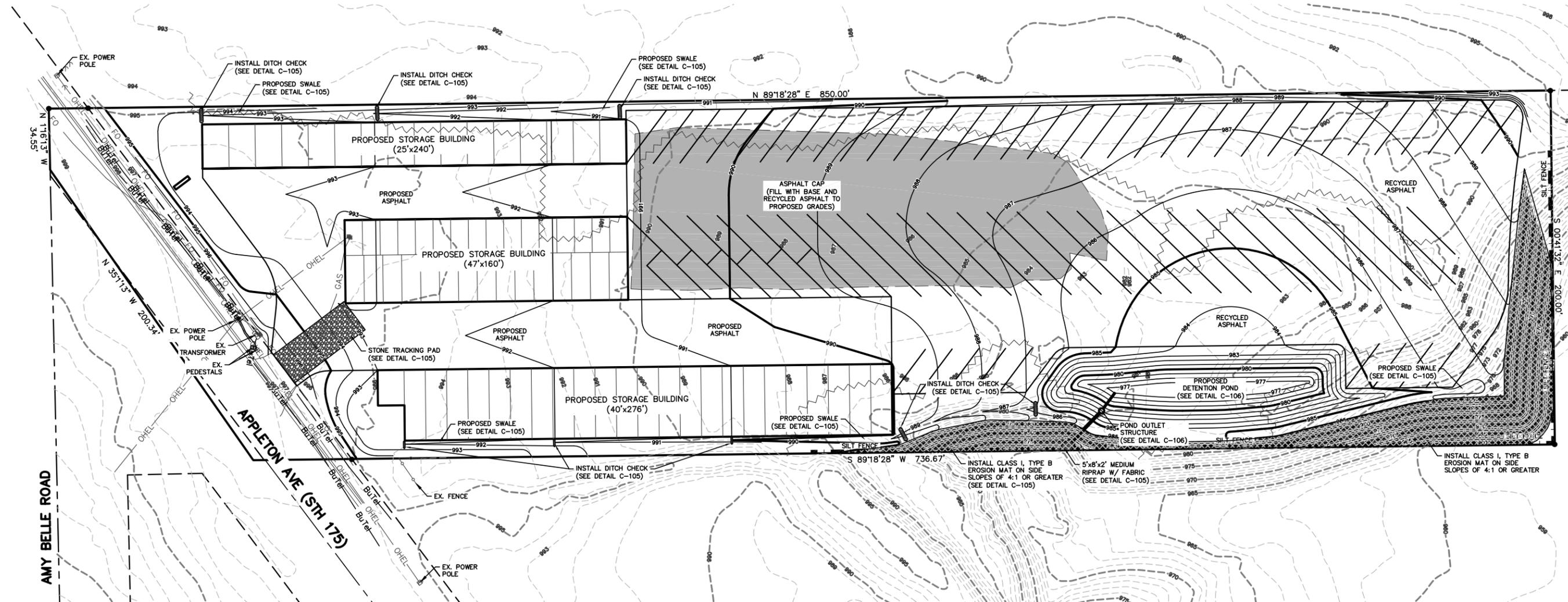
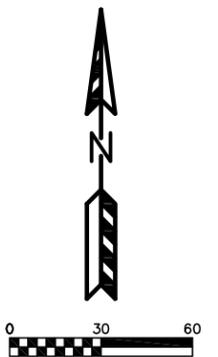
C-103

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LEGEND:

- - - 936 - - - EXISTING MINOR CONTOUR.
- - - 935 - - - EXISTING MAJOR CONTOUR.
- 936 — PROPOSED MINOR CONTOUR.
- 935 — PROPOSED MAJOR CONTOUR.
- PROPOSED STORM SEWER.
- INSTALLED SILT FENCE
- — — — — INSTALLED DITCH CHECK



TIME SCHEDULE:

APRIL 1, 2022
 INSTALL SILT FENCE AND TEMPORARY CONSTRUCTION ENTRANCE AS SHOWN ON PLANS.

APRIL 2, 2022 - SEPTEMBER 1, 2022
 DEMO EXISTING BUILDINGS, CRUSH CONCRETE AND ASPHALT AND STOCKPILE FOR USE AS FILL.
 STRIP TOPSOIL AND CONSTRUCT TEMPORARY TOPSOIL STOCKPILE LOCATION ACCORDING TO "SPECIFICATIONS FOR GRADING & EROSION CONTROL" ON "CONSTRUCTION NOTES PAGE".
 BEGIN PROPOSED SITE GRADING INCLUDING BUILDING PAD PREPARATION.
 INSTALL BASE COURSE, PAVEMENT, AND RECYCLED ASPHALT.

SEPTEMBER 2 - 15, 2022
 ALL PERMANENT SEEDING SHALL BE COMPLETED BY SEPTEMBER 15. ALL TEMPORARY SEEDING SHALL BE COMPLETED BY OCTOBER 15 (REFER TO DNR STANDARD 1059.)
 STABILIZATION FOR ALL EXPOSED SOIL AFTER OCTOBER 15 SHALL CONSIST OF ANIONIC POLYACRYLAMIDE (PAM) IN ADDITION TO TEMPORARY SEEDING IN AREAS WITHOUT EROSION CONTROL MAT. PLACE PAM IN ACCORDANCE WITH WDNR TECHNICAL STANDARD 1050. AFTER OCTOBER 15 ALL SLOPES 4:1 OR STEEPER THAT ARE NOT PERMANENTLY VEGETATED SHALL HAVE EROSION MAT INSTALLED IN PREPARATION OF WINTER CONDITIONS.
 SPREAD SALVAGED OR IMPORTED TOPSOIL IN PROPOSED LANDSCAPE AREAS AND RESTORE.
 CONTRACTOR MAY MODIFY SEQUENCING AS NEEDED TO COMPLETE CONSTRUCTION IF EROSION CONTROLS ARE MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS SET FORTH IN FEDERAL, STATE & LOCAL PERMITS. NOTIFY CITY OF MILWAUKEE PRIOR TO CHANGE.
 AS CONDITIONS WARRANT DURING CONSTRUCTION ADDITIONAL BMPs SHALL BE INSTALLED TO REDUCE THE MIGRATION OF SEDIMENT THE THE MAXIMUM EXTENT PRACTICABLE.
 REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AFTER SITE IS STABILIZED AND STABILIZE AND AREAS DISTURBED BY REMOVAL OF BMPs.

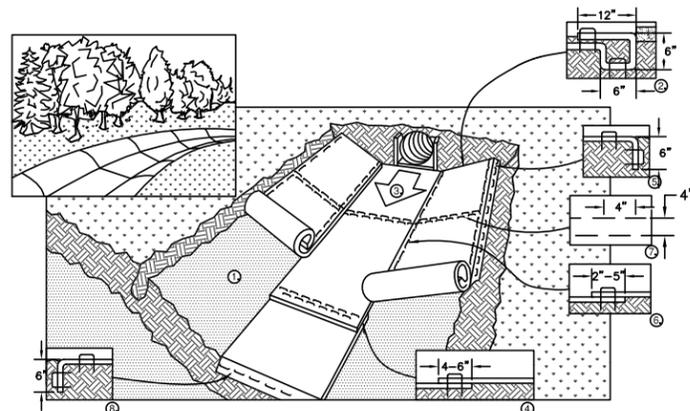
APPLETON AVENUE STORAGE FACILITY
 EROSION CONTROL PLAN
 DATED: SEPTEMBER 7, 2021

C-104

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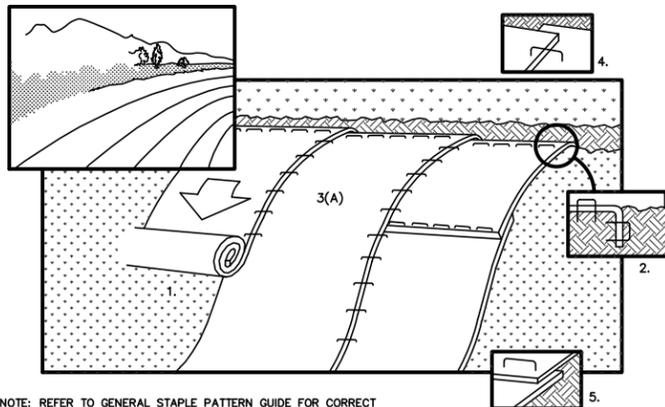
MAXIMUM PERIOD OF BARE SOIL FOR SLOPES > 20%		
SLOPE AREA DRAINS TO SEDIMENT BASIN OR SEDIMENT TRAP?	MAXIMUM PERIOD OF BARE SOIL EXPOSURE (CALENDAR DAYS)	
	LAND DISTURBANCE BETWEEN SEPTEMBER 16TH AND MAY 1ST	LAND DISTURBANCE BETWEEN MAY 2ND AND SEPTEMBER 15TH
YES	90	90
NO	60	30



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS RECOMMENDED BY THE MANUFACTURER.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPE MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 4" AND STAPLED.
7. A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTE: ALL STAPLES MUST BE 6" OR GREATER IN LENGTH

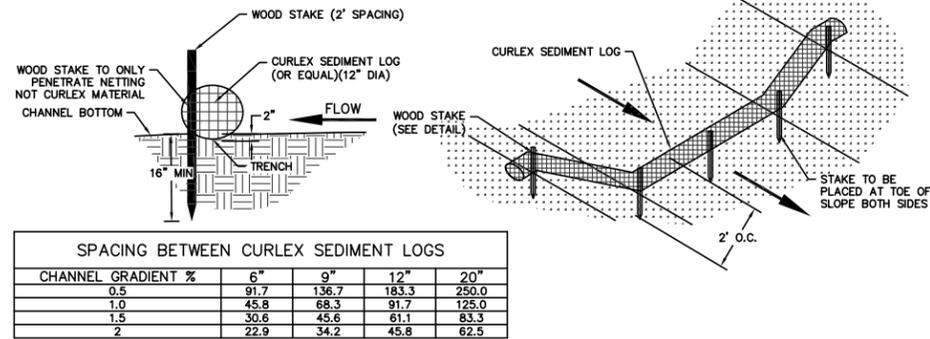
EROSION CONTROL MAT - CHANNEL INSTALLATION



NOTE: REFER TO GENERAL STAPLE PATTERN GUIDE FOR CORRECT STAPLE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS.

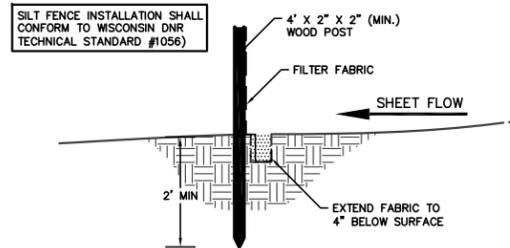
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND SEED. NOTE: WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
6. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SLOPE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS RECOMMENDED BY THE MANUFACTURER.

EROSION CONTROL MAT - SLOPE INSTALLATION

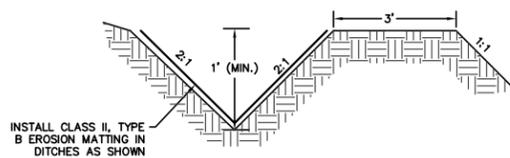


SPACING BETWEEN CURLEX SEDIMENT LOGS				
CHANNEL GRADIENT %	6"	9"	12"	20"
0.5	91.7	136.7	183.3	250.0
1.0	45.8	68.3	91.7	125.0
1.5	30.6	45.6	61.1	83.3
2	22.9	34.2	45.8	62.5

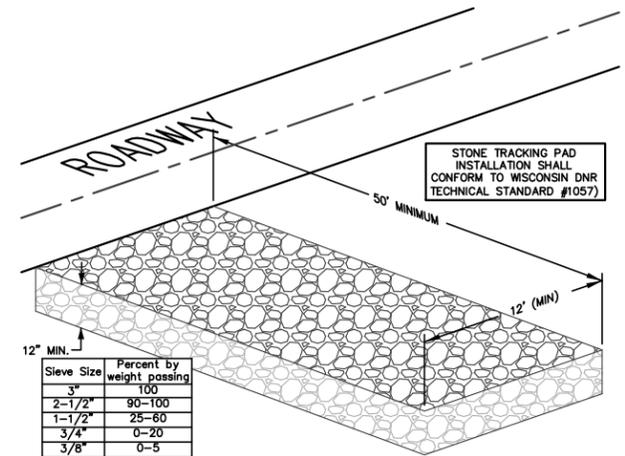
SEDIMENT LOG DETAIL



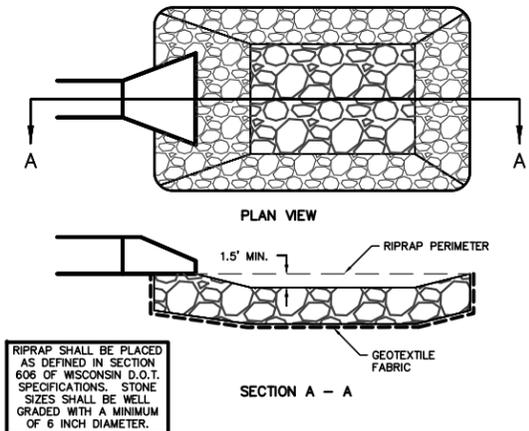
SILT FENCE CONSTRUCTION (SHEET FLOW)



BERM/SWALE DETAIL



STONE TRACKING PAD DETAIL



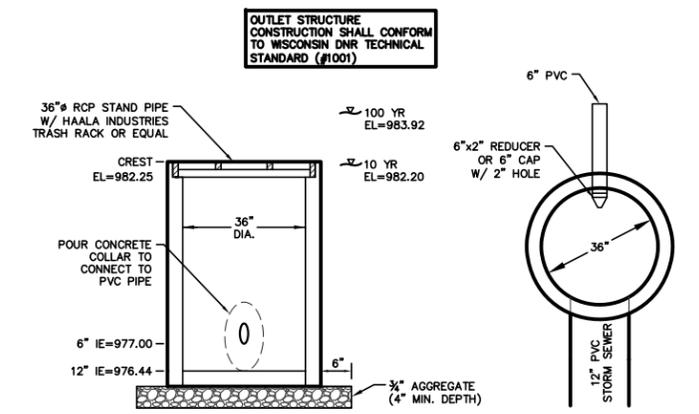
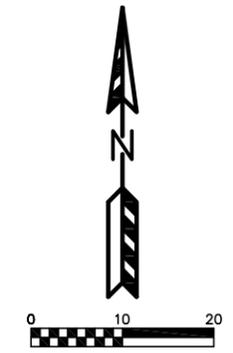
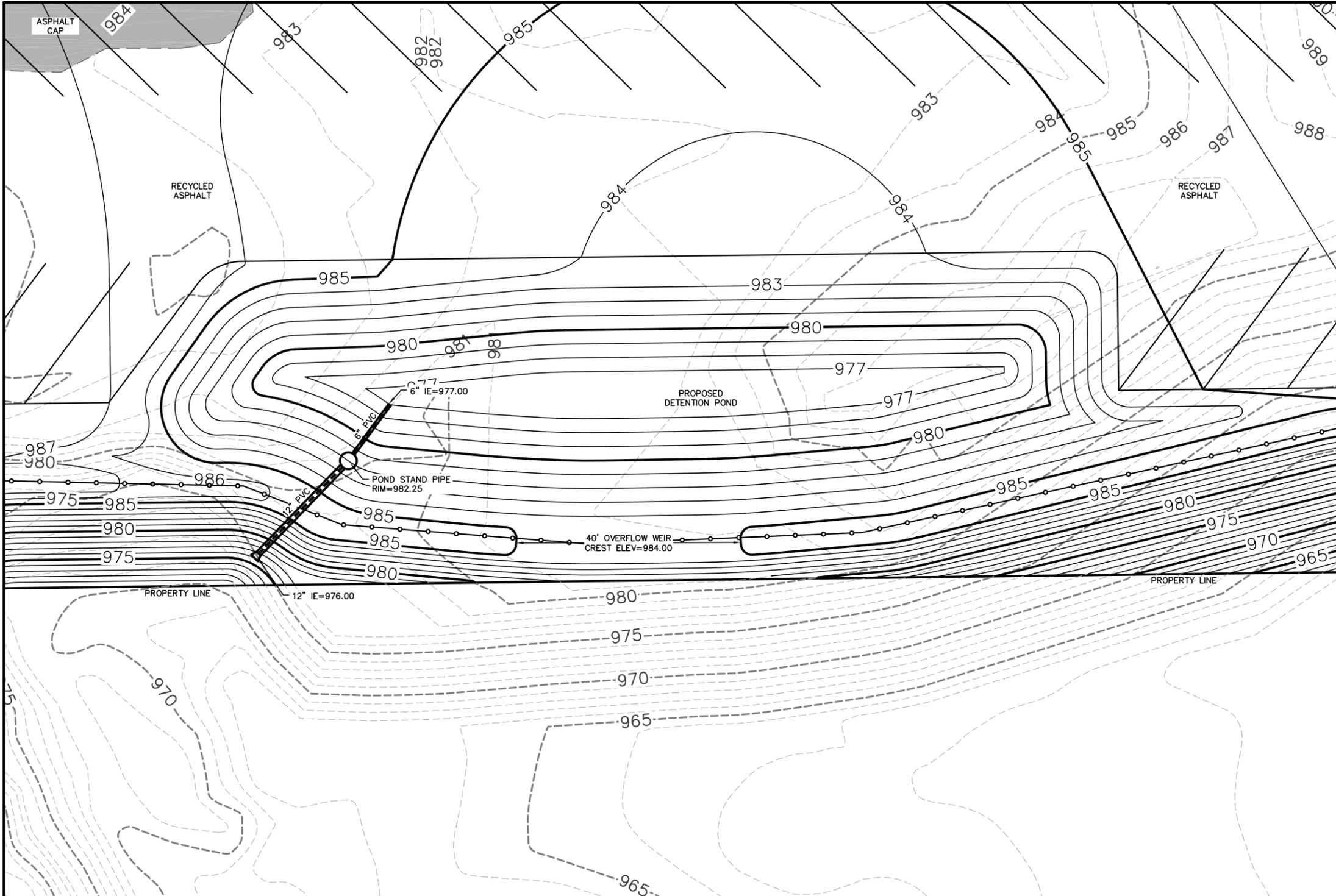
RIPRAP/STILLING BASIN DETAIL

APPLETON AVENUE STORAGE FACILITY
EROSION CONTROL DETAILS
DATED: SEPTEMBER 7, 2021

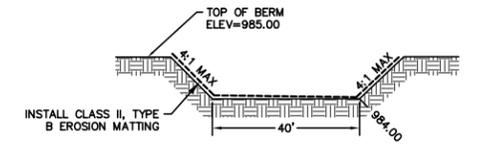
C-105



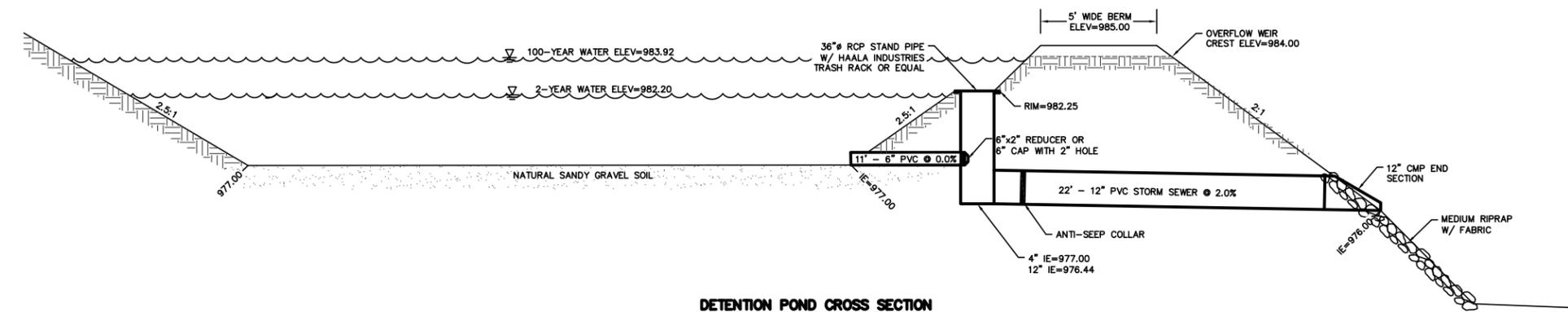
122 Wisconsin Street; West Bend, Wisconsin 53095
Phone (262) 346-7800; www.quamengineering.com



STAND PIPE DETAIL



OVERFLOW WEIR CROSS SECTION



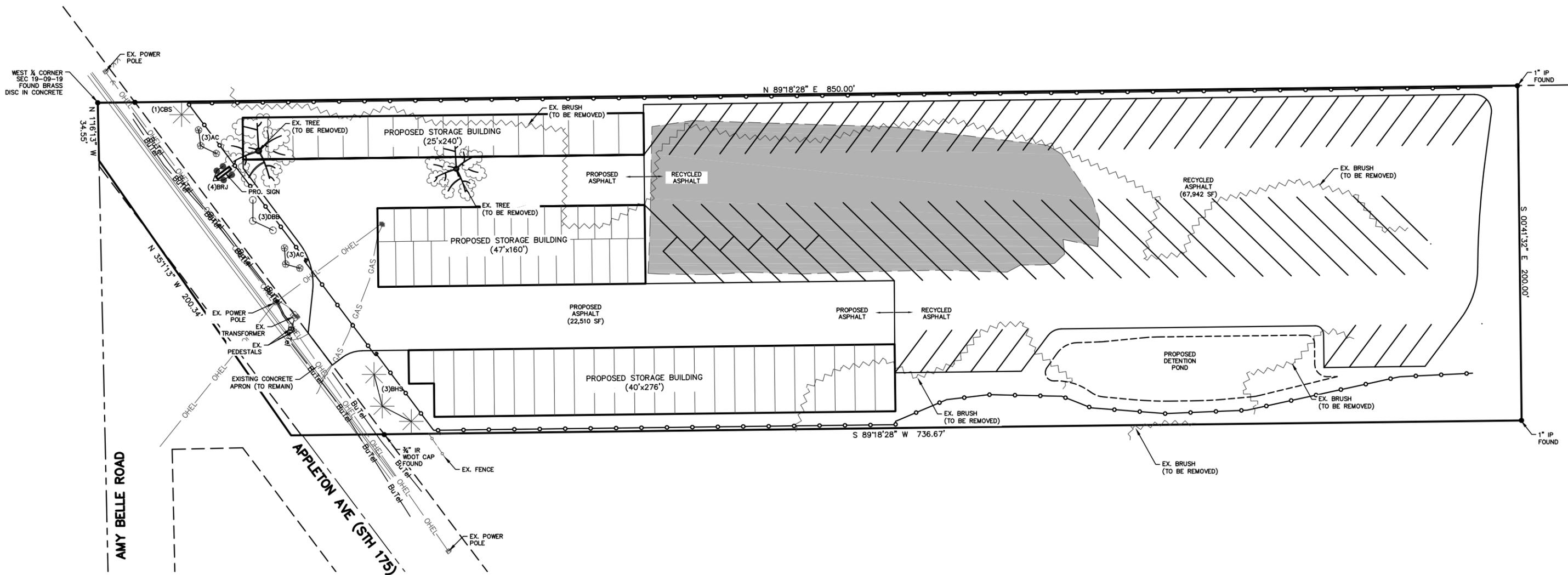
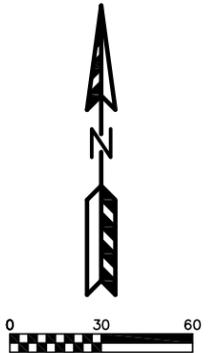
DETENTION POND CROSS SECTION

APPLETON AVENUE STORAGE FACILITY
STORMWATER MANAGEMENT PLAN AND DETAILS
DATED: SEPTEMBER 7, 2021

C-106

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants

122 Wisconsin Street; West Bend, Wisconsin 53095
Phone (262) 346-7800; www.quamengineering.com



PLANT LIST

KEY	QUAN	SIZE	COMMON NAME	ROOT
(4)			<u>EVERGREEN TREES</u>	
CBS	1	4'	COLORADO BLUE SPRUCE	BB
BHS	3	4'	BLACK HILLS SPRUCE	BB
(9)			<u>DECIDUOUS SHRUBS</u>	
AC	6	18"	ALPINE CURRANT	POT
DBB	3	24"	DWARF BURNING BUSH	POT
(4)			<u>UPRIGHT EVERGREEN SHRUBS</u>	
BRJ	4	1' G	BLUE RUG JUNIPER	CON

NOTES:

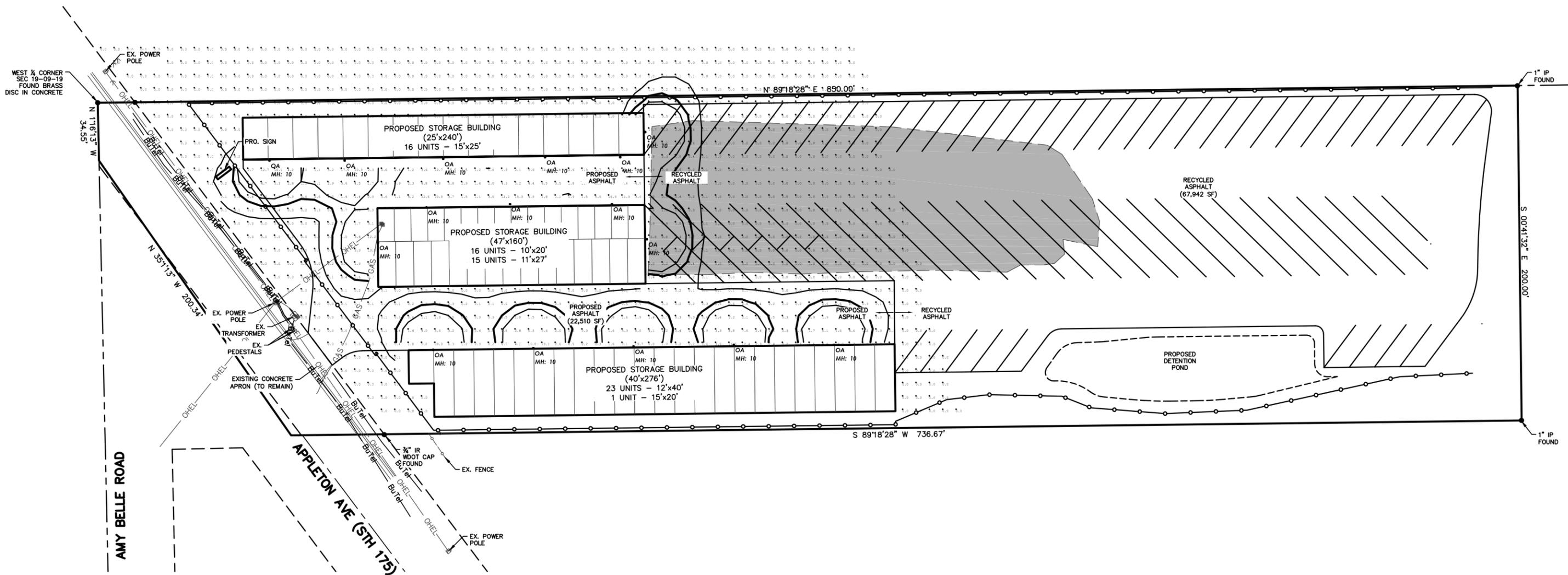
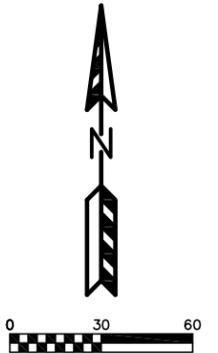
- 1) DESIGNATED LAWN AREAS TO RECEIVE A MINIMUM OF 6" OF TOPSOIL, STARTER FERTILIZER, AND LOCALLY GROWN BLUEGRASS SOD.
- 2) FOUNDATION PLANTING BEDS AND DESIGNATED PLANTING BEDS TO BE MULCHED WITH SHREDDED HARDWOOD BARK MULCH SPREAD TO A DEPTH OF 3".
- 3) INDIVIDUAL TREES AND SHRUB GROUPINGS IN LAWN AREAS TO RECEIVE SHREDDED HARDWOOD BARK MULCH PLANT RINGS (4" DIAMETER) SPREAD TO A DEPTH OF 3".
- 4) DESIGNATED PLANTING BEDS TO BE SEPARATED FROM LAWN AREAS WITH 5" BLACK VINYL EDGING.
- 5) OWNER WILL BE RESPONSIBLE FOR LANDSCAPE MAINTENANCE AFTER COMPLETION AND ACCEPTANCE OF THE PROJECT.

APPLETON AVENUE STORAGE FACILITY
 LANDSCAPE PLAN
 DATED: SEPTEMBER 7, 2021

C-107

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- NOTES:
- 1) STANDARD REFLECTANCE OF 80/50/20 UNLESS NOTED OTHERWISE
 - 2) NOT A CONSTRUCTION DOCUMENT, FOR DESIGN PURPOSES ONLY
 - 3) STANDARD INDOOR CALC POINTS @ 30 A.F.F. UNLESS NOTED OTHERWISE
 - 4) STANDARD OUTDOOR CALC POINTS @ GRADE UNLESS NOTED OTHERWISE
 - 5) EGRESS CALC POINTS @ 0" A.F.F.
 - 6) MLAZGAR ASSOCIATES ASSUMES NO RESPONSIBILITY FOR INSTALLED LIGHT LEVELS DUE TO FIELD CONDITIONS, ETC.

LUMINAIRE SCHEDULE								
Symbol	Qty	Label	Manufacturer	Description	Arrangement	Lum. Lumens	Lum. Watts	LLF
☐	16	OA	LUMARK	AXCS4A	SINGLE	5520	43.7	0.900

CALCULATION SUMMARY							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CALCPTS_1	Illuminance	Fc	0.95	19.7	0.0	N.A.	N.A.

APPLETON AVENUE STORAGE FACILITY
 LIGHTING PLAN
 DATED: SEPTEMBER 7, 2021

C-108

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants

122 Wisconsin Street; West Bend, Wisconsin 53095
 Phone (262) 346-7800; www.quamengineering.com

GENERAL SPECIFICATIONS FOR CONSTRUCTION ACTIVITIES:

1. THE PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED ACCORDING TO THE WISCONSIN D.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, LATEST EDITION, THE STANDARD SPECIFICATIONS FOR SEWER & WATER IN WISCONSIN, AND WISCONSIN ADMINISTRATIVE CODE, SPS 360 382-383, AND THE LOCAL ORDINANCES AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR EXECUTION OF THE WORK. THE CONTRACTOR SHALL CONDUCT HIS WORK ACCORDING TO THE REQUIREMENTS OF THE PERMITS.
3. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE MUNICIPALITY FORTY-EIGHT (48) HOURS PRIOR TO THE START OF CONSTRUCTION.
4. THE MUNICIPALITY SHALL HAVE THE RIGHT TO INSPECT, APPROVE, AND REJECT THE CONSTRUCTION OF THE PUBLIC PORTIONS OF THE WORK. THE OWNER SHALL HAVE THE RIGHT TO INSPECT, APPROVE, AND REJECT THE CONSTRUCTION OF ALL PRIVATE PORTIONS OF THE WORK.
5. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, THE ENGINEER, AND THE MUNICIPALITY, THEIR AGENTS, ETC, FROM ALL LIABILITY INVOLVED WITH THE CONSTRUCTION, INSTALLATION, AND TESTING OF THE WORK ON THIS PROJECT.
6. SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
7. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL UTILITY INFORMATION SHOWN ON THE PLANS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CALL DIGGERS HOTLINE AT 1-800-242-8511 TO NOTIFY THE UTILITIES OF HIS INTENTIONS, AND TO REQUEST FIELD STAKING OF EXISTING UTILITIES.
8. SILT FENCE AND OTHER EROSION CONTROL FACILITIES MUST BE INSTALLED PRIOR TO CONSTRUCTION OR ANY OTHER LAND DISTURBING ACTIVITY. FOLLOW THE SEQUENCE OF CONSTRUCTION ON THE EROSION CONTROL PLAN FOR MORE DETAILS. INSPECTIONS SHALL BE MADE WEEKLY OR AFTER EVERY RAINFALL OF 0.5" OR MORE. REPAIRS SHALL BE MADE IMMEDIATELY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EROSION CONTROL FACILITIES ONCE THE THREAT OF EROSION HAS PASSED WITH THE APPROVAL OF THE GOVERNING AGENCY.
9. ANY ADJACENT PROPERTIES OR ROAD RIGHT-OF-WAYS WHICH ARE DAMAGED DURING CONSTRUCTION MUST BE RESTORED BY THE CONTRACTOR.
10. TRASH AND DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE ON THIS SITE AND THE SITE SHALL BE CLEAN UPON COMPLETION OF WORK.
11. THE OWNER SHALL HAVE THE RIGHT TO HAVE ALL MATERIALS USED IN CONSTRUCTION TESTED FOR COMPLIANCE WITH THESE SPECIFICATIONS.

SPECIFICATIONS FOR GRADING & EROSION CONTROL:

1. THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPUTATIONS OF ALL GRADING AND FOR ACTUAL LAND BALANCE, INCLUDING UTILITY TRENCH SPOIL. THE CONTRACTOR SHALL IMPORT OR EXPORT MATERIAL AS NECESSARY TO COMPLETE THE PROJECT. CONTRACTOR SHALL NOTIFY OWNER OF THE NEED TO IMPORT OR HAUL OFF SOIL. ON-SITE LOCATIONS SUITABLE FOR BORROW OR FILL MAY BE PRESENT. COORDINATE WITH OWNER.
2. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING SOIL CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. A GEOTECHNICAL REPORT MAY BE AVAILABLE FROM THE OWNER.
3. SITE SHALL BE CLEARED TO THE LIMITS SHOWN ON THE PLANS. REMOVE VEGETATION FROM THE SITE BURNING IS NOT PERMITTED. PROTECT TREES AND OTHER FEATURES FROM DAMAGE WITH FENCING.
4. THE GEOTECHNICAL ENGINEER IS RESPONSIBLE FOR VERIFYING COMPACTION AND FILL PLACEMENT IN THE FIELD. THE GEOTECHNICAL ENGINEER MAY SUPERCEDE THESE SPECIFICATIONS IF THERE IS GOOD CAUSE TO DO SO. AN EXPLANATION MUST BE SUBMITTED TO THE ENGINEER IN WRITING BEFORE ANY DEVIATIONS ARE MADE.
5. IF NO GEOTECHNICAL RECOMMENDATION IS AVAILABLE, THEN THE FOLLOWING SPECIFICATIONS SHALL APPLY. ALL FILL SHALL BE CONSIDERED STRUCTURAL FILL AND SHALL BE PLACED IN ACCORDANCE WITH THE FOLLOWING: THE COMPACTED FILL SUBGRADE SHALL CONSIST OF AND SHALL BE UNDERLAIN BY SUITABLE BEARING MATERIALS, FREE OF ALL ORGANIC, FROZEN OR OTHER DELETERIOUS MATERIAL AND INSPECTED AND APPROVED BY THE RESIDENT GEOTECHNICAL ENGINEER. PREPARATION OF THE SUBGRADE, AFTER STRIPPING, SHALL CONSIST OF PROOF-ROLLING TO DETECT UNSTABLE AREAS THAT MIGHT BE UNDERCUT, AND COMPACTING THE SCARIFIED SURFACE TO THE SAME MINIMUM DENSITY INDICATED BELOW. THE COMPACTED FILL MATERIALS SHALL BE FREE OF ANY DELETERIOUS, ORGANIC OR FROZEN MATTER AND SHALL HAVE A MAXIMUM LIQUID LIMIT (ASTM D-423) AND PLASTICITY INDEX (ASTM D-424) IF 30 AND 10 RESPECTIVELY, UNLESS SPECIFICALLY TESTED AND FOUND TO HAVE LOW EXPANSIVE PROPERTIES AND APPROVED BY AN EXPERIENCED SOILS ENGINEER. THE TOP TWELVE (12") INCHES OF COMPACTED FILL SHOULD HAVE A MAXIMUM THREE (3") INCH PARTICLE DIAMETER AND ALL UNDERLYING COMPACTED FILL A MAXIMUM SIX (6") INCH PARTICLE DIAMETER UNLESS SPECIFICALLY APPROVED BY AN EXPERIENCED SOILS ENGINEER. ALL FILL MATERIAL MUST BE TESTED AND APPROVED UNDER THE DIRECTION AND SUPERVISION OF AN EXPERIENCED SOILS ENGINEER PRIOR TO PLACEMENT. IF THE FILL IS TO PROVIDE NON-FROST SUSCEPTIBLE CHARACTERISTICS, IT MUST BE CLASSIFIED AS A CLEAN GW, GP, SW, OR SP PER UNITED SOIL CLASSIFICATION SYSTEM (ASTM D-2487). FOR STRUCTURAL FILL THE DENSITY OF THE STRUCTURAL COMPACTED FILL AND SCARIFIED SUBGRADE AND GRADES SHALL NOT BE LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR (ASTM D-698) WITH THE EXCEPTION TO THE TOP 12 INCHES OF PAVEMENT SUBGRADE WHICH SHALL A MINIMUM IN-SITU DENSITY OF 100 PERCENT OF THE MAXIMUM DRY DENSITY, OR 5 PERCENT HIGHER THAN UNDERLYING FILL MATERIALS. THE MOISTURE CONTENT OF COHESIVE SOIL SHALL NOT VARY BY MORE THAN -1 TO +3 PERCENT AND GRANULAR SOIL ±3 PERCENT OF OPTIMUM WHEN PLACED AND COMPACTED OR RECOMPACTED, UNLESS SPECIFICALLY APPROVED BY THE SOILS ENGINEER TAKING INTO CONSIDERATION THE TYPE OF MATERIALS AND COMPACTION EQUIPMENT BEING USED. THE COMPACTION EQUIPMENT SHOULD CONSIST OF SUITABLE MECHANICAL EQUIPMENT SPECIFICALLY DESIGNED FOR SOIL COMPACTION. BULLDOZERS OR SIMILAR TRACKED VEHICLES ARE TYPICALLY NOT SUITABLE FOR COMPACTION. MATERIAL THAT IS TOO WET TO PERMIT PROPER COMPACTION MAY BE SPREAD ON THE FILL AND PERMITTED TO DRY. DISCING, HARROWING OR PULVERIZING MAY BE NECESSARY TO REDUCE THE MOISTURE CONTENT TO A SATISFACTORY VALUE, AFTER WHICH IT SHALL BE COMPACTED. THE FINISHED SUBGRADE AREAS OF THE SITE SHALL BE COMPACTED TO 100 PERCENT OF THE STANDARD PROCTOR (ASTM D-398) MAXIMUM DENSITY.
6. NO FILL SHALL BE PLACED ON A WET OR SOFT SUBGRADE THE SUBGRADE SHALL BE PROOF-ROLLED AND INSPECTED BY THE GEOTECHNICAL ENGINEER BEFORE ANY MATERIAL IS PLACED.
7. SUBGRADE TOLERANCES ARE +/- 1" FOR LANDSCAPE AREAS AND +/- 3/8" FOR ALL PAVEMENT AND BUILDING AREAS.
8. TOPSOIL SHALL BE FREE OF DELETERIOUS MATERIALS, ROOTS, OLD VEGETATION, ROCKS OVER 2" DIAMETER AND SHALL NOT BE EXCESSIVELY CLAYEY IN NATURE. NO CLUMPS LARGER THAN 4" ARE ACCEPTABLE. TOPSOIL MAY BE AMENDED AS NEEDED WITH SAND OR COMPOST TO BE LOOSE WHEN SPREAD.
9. THE CONTRACTOR SHALL MAINTAIN SITE DRAINAGE THROUGHOUT CONSTRUCTION. THIS MAY INCLUDE THE EXCAVATION OF TEMPORARY DITCHED OR PUMPING TO ALLEVIATE WATER PONDING. ANY DEWATERING SHALL NOT GO DIRECTLY TO STREAMS, CREEKS, WETLANDS OR OTHER ENVIRONMENTALLY SENSITIVE AREAS WITHOUT BEING TREATED FIRST. A DIRT BAG OR OTHER DEWATERING TREATMENT DEVICE MAY BE USED TO CAPTURE SEDIMENT FROM THE PUMPED WATER.
10. THE STONE TRACKING PAD SHALL BE INSTALLED PRIOR TO ANY CONSTRUCTION. THE TRACKING PAD IS TO BE MAINTAINED BY THE CONTRACTOR IN A CONDITION, WHICH WILL PREVENT THE TRACK OF MUD OR DRY SEDIMENT ONTO THE ADJACENT PUBLIC STREETS. SEDIMENT REACHING THE PUBLIC ROAD SHALL BE REMOVED BY STREET CLEANING (NOT HYDRAULIC FLUSHING) BEFORE THE END OF EACH WORKDAY.
11. SOIL STOCKPILES SHALL BE LOCATED A MINIMUM OF 75 FEET FROM LAKES, STREAMS, WETLANDS, DITCHES, DRAINAGE WAYS, CURBS AND GUTTERS OR OTHER STORMWATER CONVEYANCE SYSTEM, UNLESS OTHERWISE APPROVED BY THE ENGINEER. MEASURES SHALL BE TAKEN TO MINIMIZE EROSION AND RUNOFF FROM ANY SOIL STOCKPILES THAT WILL LIKELY REMAIN FOR MORE THAN FIVE WORKING DAYS. ANY STOCKPILE THAT REMAINS FOR MORE THAN 30 DAYS SHALL BE COVERED OR TREATED WITH STABILIZATION PRACTICES SUCH AS TEMPORARY OR PERMANENT SEEDING AND MULCHING.
12. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO GRADING OPERATIONS AND SHALL BE PROPERLY MAINTAINED FOR MAXIMUM EFFECTIVENESS UNTIL VEGETATION IS ESTABLISHED. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF A 0.5 INCH RAIN EVENT. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS.
13. CUT AND FILL SLOPES SHALL BE NO GREATER THAN 3:1.
14. EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECOGNIZING AND CORRECTING ALL EROSION CONTROL PROBLEMS THAT ARE A RESULT OF CONSTRUCTION ACTIVITIES. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE DEVELOPER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.
15. ALL DISTURBED SLOPES OF 4:1 OR GREATER AND DRAINAGE SWALES SHALL BE STABILIZED WITH CURLEX EROSION CONTROL FABRIC (INSTALL PER MANUFACTURER'S SPECIFICATIONS).

SPECIFICATIONS FOR PRIVATE UTILITIES:

1. EXISTING UTILITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. BEFORE PROCEEDING WITH ANY UTILITY CONSTRUCTION SHALL EXCAVATE EACH EXISTING LATERAL OR POINT OF CONNECTION AND VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES. IF ANY EXISTING UTILITIES ARE NOT AS SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR POSSIBLE REDESIGN. CONTRACTOR SHALL CALL "DIGGERS HOTLINE" PRIOR TO ANY CONSTRUCTION.
 2. MATERIALS FOR STORM SEWER SHALL BE AS FOLLOWS: STORM SEWER PIPE 48" OR LESS SHALL BE HIGH DENSITY POLYETHYLENE (HDPE) CORRUGATED PIPE WITH AN INTEGRALLY FORMED SMOOTH WATERWAY SUCH AS ADS N-12. FOR PIPE 10" OR LESS IN DIAMETER, PVC, ASTM D-3034, SDR-26, MAY ALSO BE USED. WHERE SPECIFICALLY REQUIRED, REINFORCED CONCRETE PIPE (RCP), ASTM C-76, CLASS III OR HIGHER, MAY BE USED. TRENCH SECTION SHALL BE CLASS "B" FOR PVC AND HDPE AND CLASS "C" FOR CONCRETE (PER STANDARD SPECIFICATIONS). MANHOLES, INLETS AND CATCH BASINS SHALL BE PRE CAST REINFORCED CONCRETE, ASTM C-478. CASTINGS SHALL BE HEAVY DUTY CAST IRON. AREA DRAINS SHALL BE ADSNYLOPLAST OR EQUIVALENT AND SHALL BE A MINIMUM OF 24" IN DIAMETER. CONNECTIONS TO EXISTING PIPES SHALL BE MADE WITH INSERT A WYE OR EQUIVALENT. LAST (3) THREE JOINTS SHALL BE RESTRAINED WITH RODS. PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M-294, TYPE S.
 3. TRACER WIRE (NO.8 SINGLE STRAND COPPER) AND WARNING TAPE SHALL BE INSTALLED ON ALL UTILITIES IN ACCORDANCE WITH THE LOCAL AND STATE CODES. TRACER WIRE SHALL TERMINATE IN A VALVECO TERMINAL BOX AT EACH END IN ACCORDANCE WITH 182.0715(2R) OF STATE STATUTES.
 4. ALL UTILITY CONSTRUCTION SHALL BE DONE IN COMPLIANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN (LATEST EDITION AND ADDENDUM) AND ALL STATE AND LOCAL CODES. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE WHICH SPECIFICATIONS APPLY, AND TO COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE LOCAL AND STATE AUTHORITIES.
 5. THE LENGTHS OF ALL UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM THE PLAN. LENGTHS SHALL BE VERIFIED IN THE FIELD DURING CONSTRUCTION.
 6. GENERAL CONTRACTOR SHALL COORDINATE WITH LOCAL GAS TELEPHONE, AND ELECTRICAL UTILITIES FOR EXACT LOCATION SIZE AND DEPTH OF NEW SERVICE AND REMOVAL OF EXISTING SERVICES.
19. ALL WORK WITHIN THE APPLETON AVENUE RIGHT-OF-WAY REQUIRES A PERMIT FROM THE WISCONSIN D.O.T.

SPECIFICATIONS FOR PAVING:

1. AGGREGATES USED IN THE CRUSHED STONE BASE SHALL CONFORM TO THE GRADATION REQUIREMENTS SECTIONS 301.2 AND 305.2.2 OF THE STANDARD SPECIFICATIONS. THICKNESS SHALL BE PER THE DETAIL ON THE PLANS. BASE SHALL BE 1-1/4" INCH DIAMETER LIMESTONE TRAFFIC BOND AGGREGATE BASE COURSE UNLESS NOTED OTHERWISE. SUBSTITUTION AND/OR RECYCLED MATERIALS MAY BE ALLOWED WITH APPROVAL FROM THE OWNER.
2. SUBGRADE SHALL BE PROOFROLLED AND APPROVED BY A GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF STONE BASE. EXCAVATE UNSUITABLE AREAS AND REPLACE WITH BREAKER RUN STONE AND RECOMPACT. REFER TO THE GEOTECHNICAL REPORT FOR ADDITIONAL SPECIFICATIONS.
3. EXISTING PAVEMENT SHALL BE SAWCUT IN NEAT STRAIGHT LINES TO FULL DEPTH AT ANY POINT WHERE EXISTING PAVEMENT IS REMOVED. CURB AND WALK SHALL BE REMOVED TO THE NEAREST JOINT. REMOVED PAVEMENT SHALL BE REPLACED WITH THE SAME SECTION AS EXISTING. MUNICIPAL STANDARDS MAY REQUIRE ADDITIONAL WORK.
4. ASPHALT FOR PARKING AREAS AND THE PRIVATE ROAD SHALL BE PER THE DETAILS MATERIALS AND PLACEMENT SHALL CONFORM TO THE DOT STANDARD SPECIFICATIONS, SECTION 450 AND 460 LT 58-28 S IS REQUIRED UNLESS NOTED OTHERWISE A COMMERCIAL GRADE MIX MAY BE SUBSTITUTED ONLY WITH APPROVAL FROM THE OWNER.
5. TACK COAT SHALL BE IN ACCORDANCE WITH THE SUBSECTION 455.2.5 OF THE STANDARD SPECIFICATIONS. THE RATE OF APPLICATION SHALL BE 0.025 GAL/SY.
6. PAVEMENT MARKINGS SHALL BE PAINT IN ACCORDANCE WITH WISCONSIN DOT SECTION 646 OF THE STANDARD SPECIFICATIONS AND WITH LOCAL CODES. THE FOLLOWING ITEMS SHALL BE PAINTED WITH COLORS NOTED BELOW:

PARKING STALLS: WHITE

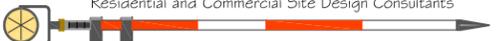
RESTORATION NOTES:

1. ALL DISTURBED AREAS, EXCEPT STREET PAVEMENT AND SIDEWALK AREAS, SHALL RECEIVE A MINIMUM OF FOUR (4) INCHES OF TOPSOIL, FERTILIZER, SEED AND MULCH. RESTORATION WILL OCCUR AS SOON AFTER THE DISTURBANCE AS PRACTICAL. LAWN AREAS WITH SLOPES GREATER THAN 4:1 SHALL BE SEEDED WITH OLDS "NOMOW" MIX OR EQUAL. ALL OTHER DISTURBED AREAS SHALL BE SEEDED WITH MADISON PARKS MIX OR EQUAL. MIXTURES SHALL BE IN ACCORDANCE WITH SECTION 630 OF D.O.T. SPECIFICATIONS.
2. AN EQUAL AMOUNT OF ANNUAL RYEGRASS SHALL BE ADDED TO THE MIX. SEED MIXTURES SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. FERTILIZER SHALL BE APPLIED AT THE RATE OF FOUR (4) POUNDS PER 1,000 SQUARE FEET. FERTILIZER SHALL MEET THE MINIMUM REQUIREMENTS THAT FOLLOW: NITROGEN, NOT LESS THAN 16%; PHOSPHORIC ACID, NOT LESS THAN 6%; POTASH, NOT LESS THAN 6%.
3. ALL FINISH GRADED AREAS SHALL BE SEEDED AND MULCHED BY SEPTEMBER 15TH. IF THE SITE DOES NOT HAVE FINISH GRADED AREAS COMPLETED BY OCTOBER 15TH, ALL DISTURBED AREAS SHALL BE RESTORED WITH TEMPORARY SEEDING (COVER CROP). AREAS NEEDING PROTECTION DURING PERIODS WHEN PERMANENT SEEDING IS NOT APPLIED SHALL BE SEEDED WITH ANNUAL SPECIES FOR TEMPORARY PROTECTION. SEE TABLE 1 OF THE WISCONSIN DNR CONSERVATION PRACTICE STANDARD 1059, FOR SEEDING RATES OF COMMONLY USED SPECIES. THE RESIDUE FROM THIS CROP MAY EITHER BE INCORPORATED INTO THE SOIL DURING SEEDBED PREPARATION AT THE NEXT PERMANENT SEEDING PERIOD OR LEFT ON THE SOIL SURFACE AND THE PLANTING MADE AS A NO-TILL SEEDING.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SATISFACTORY STAND OF GRASS ON ALL SEEDED AREAS FOR ONE YEAR AFTER THE PROJECT'S FINAL ACCEPTANCE.

APPLETON AVENUE STORAGE FACILITY
 CONSTRUCTION NOTES
 DATED: SEPTEMBER 7, 2021

C-109

QUAM ENGINEERING, LLC
Residential and Commercial Site Design Consultants



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**STORMWATER
MANAGEMENT REPORT**

**APPLETON AVENUE STORAGE FACILITY
VILLAGE OF GERMANTOWN, WISCONSIN**

September 7, 2021

PREPARED FOR:
TR Capital, LLC
Attn: Jon Then
N91 W27428 Red Fox Run
Hartland, WI 53029

PREPARED BY:
Quam Engineering, LLC
122 Wisconsin Street
West Bend, WI 53095

JT-04-21

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APPENDICES

- A. Soils Information
- B. Pre-Development Hydrology and Hydraulics
- C. Post-Development Hydrology and Hydraulics
- D. TSS Reduction Calculations
- E. USLE Worksheet
- F. Stormwater Maintenance Agreement
- G. Exhibits
 - 1) Pre-Development Conditions Drainage Map
 - 2) Post-Development Conditions Drainage Map
 - 3) Grading Plan
 - 4) Erosion Control Plan
 - 5) Details
 - 6) Pond Plan

INTRODUCTION

The proposed development that is covered in the Erosion Control and Stormwater Management Report is located along the east side of Appleton Avenue across from Amy Belle Road in the Village of Germantown, Washington County. The site is part of the northeast ¼ of the southwest ¼, Section 19, Town 9 North, Range 20 East. The property is located at W219N11588 Appleton Ave.

The existing site consists primarily of a house and an old landscaping business connecting into an existing gravel pit on the south and east sides of the property. There is an old, contaminated area in the middle of the site capped with asphalt.

The proposed development will include the construction of three proposed storage buildings, associated drive isles and RV parking lot in the rear of the site. All sedimentation and erosion control measures, including the silt fence/sock and the stone construction entrance will be installed prior to any grading activities. Stormwater management will be provided by the construction of a proposed Detention Pond.

The proposed development is a part of the Menomonee River Watershed. The sub-watershed includes the proposed development. The Menomonee River is approximately 2 miles east of the development.

The intent of this report is to provide details on how the stormwater will be collected and managed so that it leaves the proposed development in accordance with the Village of Germantown, MMSD and Wisconsin DNR stormwater management standards.

STANDARDS

The stormwater management system for the proposed site will meet the post-construction stormwater requirements for the Village of Germantown, Milwaukee MMSD, and the Wisconsin Department of Natural Resources.

Total Suspended Solids

For new development, by design, reduce to the maximum extent practicable, the total suspended solids load by 80%, based on an average annual rainfall, as compared to no runoff management controls. For redevelopment, by design, the total suspended solids load by 40%, based on an average annual rainfall, for all paved areas as compared to no runoff management controls.

Storm Water Quantity

The target design criteria for the stormwater management facilities proposed in this report follow the Village of Germantown ordinances, MMSD Chapter 13 Surface Water and Stormwater Rule, and NR 151 of the Wisconsin Administrative Code. The Volumetric Design Procedure was used to demonstrate compliance with the water quantity requirements of these regulations. The procedure requires that existing runoff volume not be exceeded during the critical time period of the Menomonee River watershed that the site is located in.

Infiltration

BMPs shall be designed, installed and maintained to infiltrate runoff so that post-development infiltration volume shall be at least 90 percent of the pre-settlement infiltration volume based on the average annual rainfall. The Village Engineer may determine exceptions based on site history, land use and soil conditions. This project is exempt from infiltration requirements based on the existing soil types and presence of redox within the soil test pits; information on the existing site soils can be found in the appendices.

Method of Analysis

The storm water runoff rates and quantities have been analyzed using the methodology prescribed in Urban Hydrology for Small Watersheds, United States Department of Agriculture Soil Conservation Service Technical Release 55 (TR-55). The SCS Type II, 24-hour rainfall distribution curve was used for the calculations.

Rainfall Analysis

The selected design storms were based on NOAA Atlas 14.

Recurrence Interval (Year)	Rainfall depth (in)
2	2.65
10	3.82
50	5.53
100	6.41

PRE-DEVELOPMENT SITE CONDITIONS

The existing site consists of a house with a bunch of landscape storage bins and connecting paved areas. All the water on the site drains to the quarry to the southeastern side of the site. The site is well drained and well sloped to the quarry.

Table 1 below shows the soil types found on the site. The site contains predominately of a gravel pit and well drained soils.

Table 1 Soil Types

Symbol	Soil	Hydrologic Group
FsB	Fox silt loam	B
GP	Gravel Pit	

POST-DEVELOPMENT SITE CONDITIONS

Appleton Avenue Storage is a project that includes the construction of three proposed storage buildings, associated parking drive isles, and proposed gravel parking for RV storage.

Detailed watershed information can also be found in the HydroCAD computer analysis printouts found in the Appendix C. The proposed site discharge location will match the current site discharge location. Discharge from the proposed detention basin will discharge to the south towards the quarry. The proposed drainage area is shown on the Post-Development Conditions Drainage Map included in Appendix G.

The post-development conditions runoff volume is to be reduced so that it is less than or equal the pre-development conditions runoff volume. The overall development is required to provide 40% TSS reduction for all paved areas as a redevelopment. The water quality and quantity summaries are included on page 5 of this report. The calculations are included in Appendices A, B and C.

STORMWATER MANAGEMENT

The post-construction stormwater quantity requirement for the Appleton Avenue Storage project was met using the Volumetric Design Procedure. Detailed watershed information can also be found in the HydroCAD computer analysis printouts found in the Appendices. The table below contains the runoff volumes for the critical period in the Menomonee River, 9.5 hours. They are in compliance with the MMSD's Volumetric Design Procedure.

Table 2 - Water Quantity Requirements

Rain Event	Pre-Dev. Runoff Volume {acre-ft}	Post-Dev. Runoff Volume {acre-ft}
2-year	0.225	0.180
100-year	1.051	0.927

The table below contains the peak flows and elevations for the project wet-detention basin for 2-year and 100-year events.

Table 3 - Post-Development Peak Discharge Rates

Pond	Rain Event	Outflow Peak (cfs)	Peak Elevation (ft)
Pond 1P	2	0.24	982.20
	100	7.89	983.92

The stormwater quality requirement for this project was met using WinSLAMM to demonstrate that the wet-detention basin will effectively remove over 40% of Total Suspended Solids (TSS) based on the average annual rainfall for the redevelopment of this site. Water Quality calculations can be found in Appendix D. The following table is a summary of the results:

Table 4 - Water Quality Requirements

Annual Pounds Yielded	Pounds after Outlet Controls	Removal Rate
1467	836	43.01%

Infiltration

The existing site contains a contaminated soils area so infiltration will not be required for this site.

CONCLUSION

The best management practices for the proposed project, will maintain runoff volumes in the post-developed condition compared with the pre-developed condition during the critical time period for the Menomonee River. The detention pond will also provide 40% TSS reduction as required by state and local requirements.

APPENDIX A

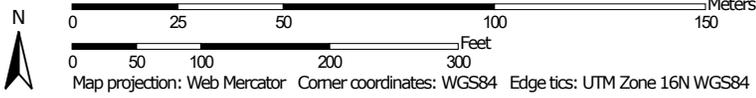
SOILS INFORMATION

Hydrologic Soil Group—Washington County, Wisconsin



Soil Map may not be valid at this scale.

Map Scale: 1:1,780 if printed on A landscape (11" x 8.5") sheet.



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 1:15,800.

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: Washington County, Wisconsin
 Survey Area Data: Version 20, Jun 8, 2020

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

Date(s) aerial images were photographed: Aug 1, 2019—Oct 12, 2019

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CeD2	Casco loam, 12 to 20 percent slopes, eroded	B	0.1	1.1%
FsB	Fox silt loam, 2 to 6 percent slopes	B	1.2	23.2%
GP	Gravel pit		3.9	75.7%
Totals for Area of Interest			5.2	100.0%

Description

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.

Rating Options

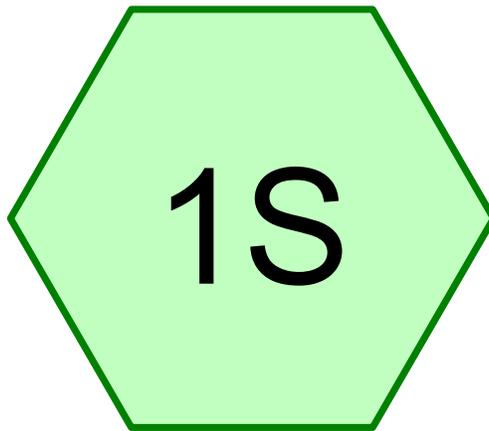
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

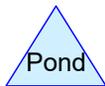
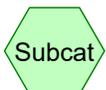
Tie-break Rule: Higher

APPENDIX B

PRE-DEVELOPMENT HYDROLOGY AND HYDRAULICS



Pre-Dev



Pre Development

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Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 9208 WI Washington

Rainfall events imported from "NRCS-Rain.txt" for 9208 WI Washington

Pre Development

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Page 3

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.385	61	>75% Grass cover, Good, HSG B (1S)
0.655	98	Existing Asphalt (1S)
0.058	98	Existing Buildings (1S)
0.104	98	Existing Concrete (1S)
0.763	96	Existing Gravel (1S)
0.465	55	Woods, Good, HSG B (1S)
3.431	77	TOTAL AREA

Pre Development

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Page 4

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.850	HSG B	1S
0.000	HSG C	
0.000	HSG D	
1.581	Other	1S
3.431		TOTAL AREA

Pre Development

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Page 5

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.385	0.000	0.000	0.000	1.385	>75% Grass cover, Good	1S
0.000	0.000	0.000	0.000	0.655	0.655	Existing Asphalt	1S
0.000	0.000	0.000	0.000	0.058	0.058	Existing Buildings	1S
0.000	0.000	0.000	0.000	0.104	0.104	Existing Concrete	1S
0.000	0.000	0.000	0.000	0.763	0.763	Existing Gravel	1S
0.000	0.465	0.000	0.000	0.000	0.465	Woods, Good	1S
0.000	1.850	0.000	0.000	1.581	3.431	TOTAL AREA	

Pre Development

MSE 24-hr 3 2-Year Rainfall=2.65"

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

Subcatchment 1S: Pre-Dev

Runoff Area=149,435 sf 23.83% Impervious Runoff Depth>0.79"
Flow Length=217' Tc=18.3 min CN=77 Runoff=3.18 cfs 0.225 af

Total Runoff Area = 3.431 ac Runoff Volume = 0.225 af Average Runoff Depth = 0.79"
76.17% Pervious = 2.613 ac 23.83% Impervious = 0.818 ac

Pre Development

MSE 24-hr 3 2-Year Rainfall=2.65"

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Summary for Subcatchment 1S: Pre-Dev

Runoff = 3.18 cfs @ 12.30 hrs, Volume= 0.225 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.65"

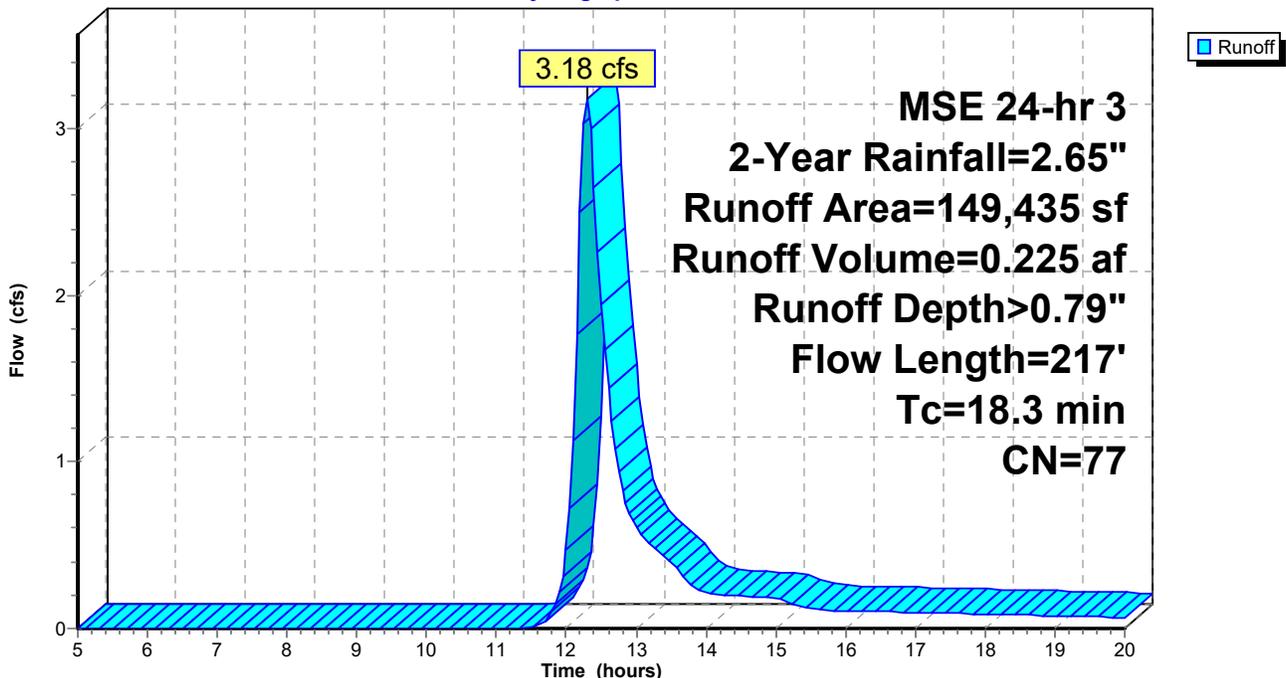
Area (sf)	CN	Description
* 28,532	98	Existing Asphalt
* 4,543	98	Existing Concrete
* 2,537	98	Existing Buildings
* 33,244	96	Existing Gravel
20,260	55	Woods, Good, HSG B
60,319	61	>75% Grass cover, Good, HSG B

149,435 77 Weighted Average
113,823 76.17% Pervious Area
35,612 23.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	150	0.0333	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 2.65"
0.6	67	0.1340	1.83		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
18.3	217	Total			

Subcatchment 1S: Pre-Dev

Hydrograph



Pre Development

MSE 24-hr 3 100-Year Rainfall=6.41"

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

Subcatchment 1S: Pre-Dev

Runoff Area=149,435 sf 23.83% Impervious Runoff Depth>3.68"
Flow Length=217' Tc=18.3 min CN=77 Runoff=15.30 cfs 1.051 af

Total Runoff Area = 3.431 ac Runoff Volume = 1.051 af Average Runoff Depth = 3.68"
76.17% Pervious = 2.613 ac 23.83% Impervious = 0.818 ac

Pre Development

MSE 24-hr 3 100-Year Rainfall=6.41"

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Summary for Subcatchment 1S: Pre-Dev

Runoff = 15.30 cfs @ 12.28 hrs, Volume= 1.051 af, Depth> 3.68"

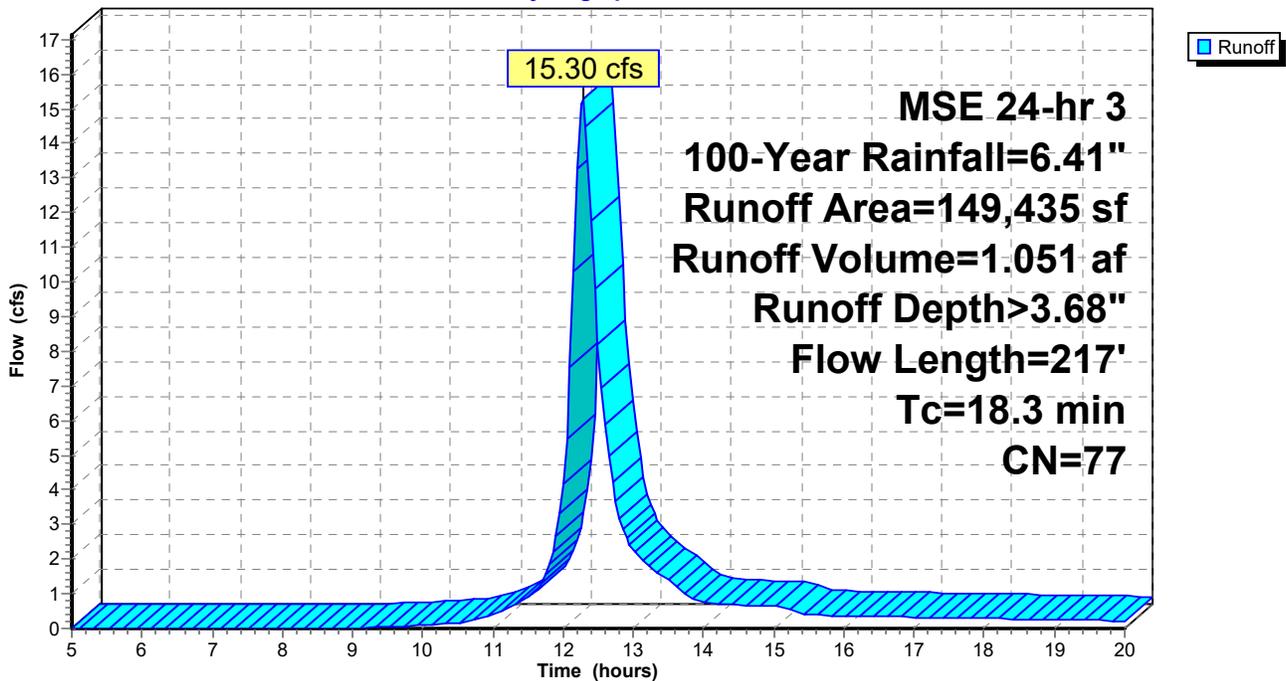
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=6.41"

Area (sf)	CN	Description
* 28,532	98	Existing Asphalt
* 4,543	98	Existing Concrete
* 2,537	98	Existing Buildings
* 33,244	96	Existing Gravel
20,260	55	Woods, Good, HSG B
60,319	61	>75% Grass cover, Good, HSG B
149,435	77	Weighted Average
113,823		76.17% Pervious Area
35,612		23.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	150	0.0333	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 2.65"
0.6	67	0.1340	1.83		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
18.3	217	Total			

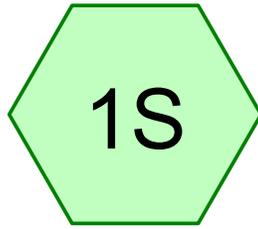
Subcatchment 1S: Pre-Dev

Hydrograph

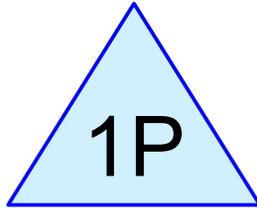


APPENDIX C

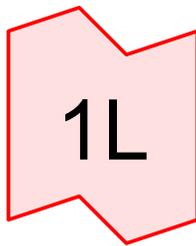
POST-DEVELOPMENT HYDROLOGY AND HYDRAULICS



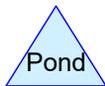
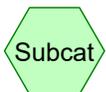
To Pond



Detention Pond



Total Runoff



Routing Diagram for Post Development

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Post Development

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Rainfall events imported from "NRCS-Rain.txt" for 9208 WI Washington

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.783	61	>75% Grass cover, Good, HSG B (1S)
2.076	98	Paved parking (1S)
0.571	98	Proposed Buildings (1S)
3.431	90	TOTAL AREA

Post Development

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Page 4

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.783	HSG B	1S
0.000	HSG C	
0.000	HSG D	
2.647	Other	1S
3.431		TOTAL AREA

Post Development

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Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.783	0.000	0.000	0.000	0.783	>75% Grass cover, Good	1S
0.000	0.000	0.000	0.000	2.076	2.076	Paved parking	1S
0.000	0.000	0.000	0.000	0.571	0.571	Proposed Buildings	1S
0.000	0.783	0.000	0.000	2.647	3.431	TOTAL AREA	

Post Development

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Page 6

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	976.44	976.00	22.0	0.0200	0.013	12.0	0.0	0.0

Post Development

MSE 24-hr 3 2-Year Rainfall=2.65"

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Page 7

Time span=11.75-21.25 hrs, dt=0.05 hrs, 191 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: To Pond

Runoff Area=149,435 sf 77.17% Impervious Runoff Depth>1.48"
Flow Length=442' Tc=9.4 min CN=90 Runoff=8.81 cfs 0.424 af

Pond 1P: Detention Pond

Peak Elev=982.20' Storage=13,225 cf Inflow=8.81 cfs 0.424 af
Primary=0.24 cfs 0.180 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.180 af

Link 1L: Total Runoff

Inflow=0.24 cfs 0.180 af
Primary=0.24 cfs 0.180 af

Total Runoff Area = 3.431 ac Runoff Volume = 0.424 af Average Runoff Depth = 1.48"
22.83% Pervious = 0.783 ac 77.17% Impervious = 2.647 ac

Post Development

MSE 24-hr 3 2-Year Rainfall=2.65"

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Page 8

Summary for Subcatchment 1S: To Pond

Runoff = 8.81 cfs @ 12.17 hrs, Volume= 0.424 af, Depth> 1.48"

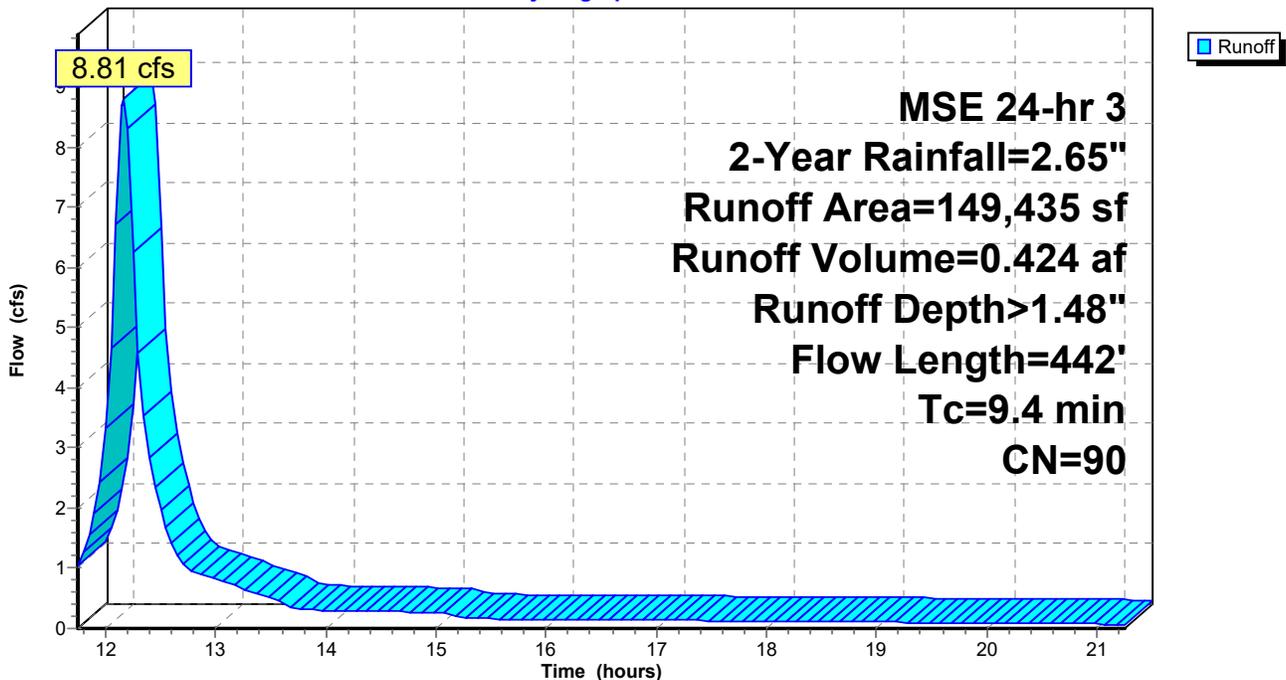
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 11.75-21.25 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.65"

	Area (sf)	CN	Description
*	24,860	98	Proposed Buildings
*	90,452	98	Paved parking
	34,123	61	>75% Grass cover, Good, HSG B
	149,435	90	Weighted Average
	34,123		22.83% Pervious Area
	115,312		77.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	42	0.1000	0.17		Sheet Flow, Grass: Dense n= 0.240 P2= 2.65"
5.3	400	0.0070	1.25		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
9.4	442	Total			

Subcatchment 1S: To Pond

Hydrograph



Post Development

MSE 24-hr 3 2-Year Rainfall=2.65"

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Summary for Pond 1P: Detention Pond

Inflow Area = 3.431 ac, 77.17% Impervious, Inflow Depth > 1.48" for 2-Year event
 Inflow = 8.81 cfs @ 12.17 hrs, Volume= 0.424 af
 Outflow = 0.24 cfs @ 15.09 hrs, Volume= 0.180 af, Atten= 97%, Lag= 175.3 min
 Primary = 0.24 cfs @ 15.09 hrs, Volume= 0.180 af
 Secondary = 0.00 cfs @ 11.75 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 11.75-21.25 hrs, dt= 0.05 hrs / 3
 Peak Elev= 982.20' @ 15.09 hrs Surf.Area= 4,621 sf Storage= 13,225 cf

Plug-Flow detention time= 273.2 min calculated for 0.177 af (42% of inflow)
 Center-of-Mass det. time= 199.5 min (996.2 - 796.7)

Volume	Invert	Avail.Storage	Storage Description
#1	977.00'	34,245 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
977.00	725	0	0
978.00	1,340	1,033	1,033
979.00	2,035	1,688	2,720
980.00	2,780	2,408	5,128
981.00	3,575	3,178	8,305
982.00	4,435	4,005	12,310
983.00	5,355	4,895	17,205
984.00	7,725	6,540	23,745
985.00	13,275	10,500	34,245

Device	Routing	Invert	Outlet Devices
#1	Primary	976.44'	12.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 976.44' / 976.00' S= 0.0200 1/ S Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	977.00'	2.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	982.25'	36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	984.00'	40.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.24 cfs @ 15.09 hrs HW=982.20' TW=0.00' (Dynamic Tailwater)
 ↑ **1=Culvert** (Passes 0.24 cfs of 6.85 cfs potential flow)
 ↑ **2=Orifice/Grate** (Orifice Controls 0.24 cfs @ 10.98 fps)
 ↑ **3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 11.75 hrs HW=977.12' TW=0.00' (Dynamic Tailwater)
 ↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Post Development

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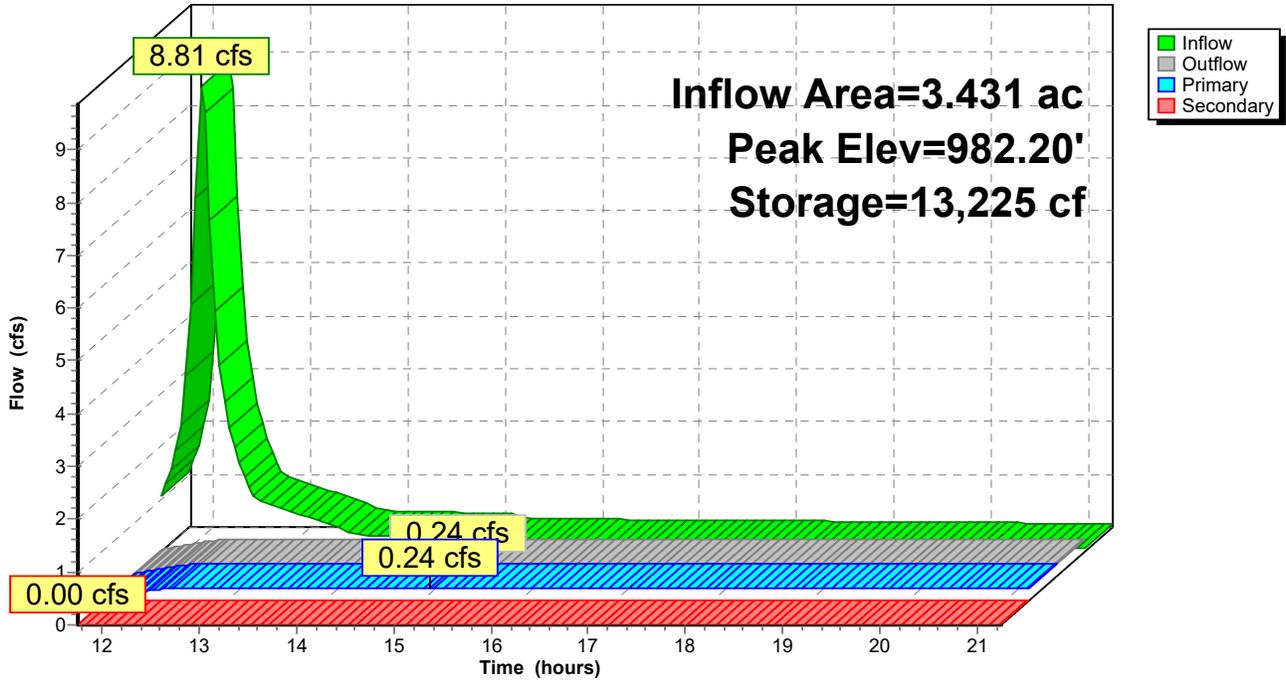
MSE 24-hr 3 2-Year Rainfall=2.65"

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Pond 1P: Detention Pond

Hydrograph



Post Development

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MSE 24-hr 3 2-Year Rainfall=2.65"

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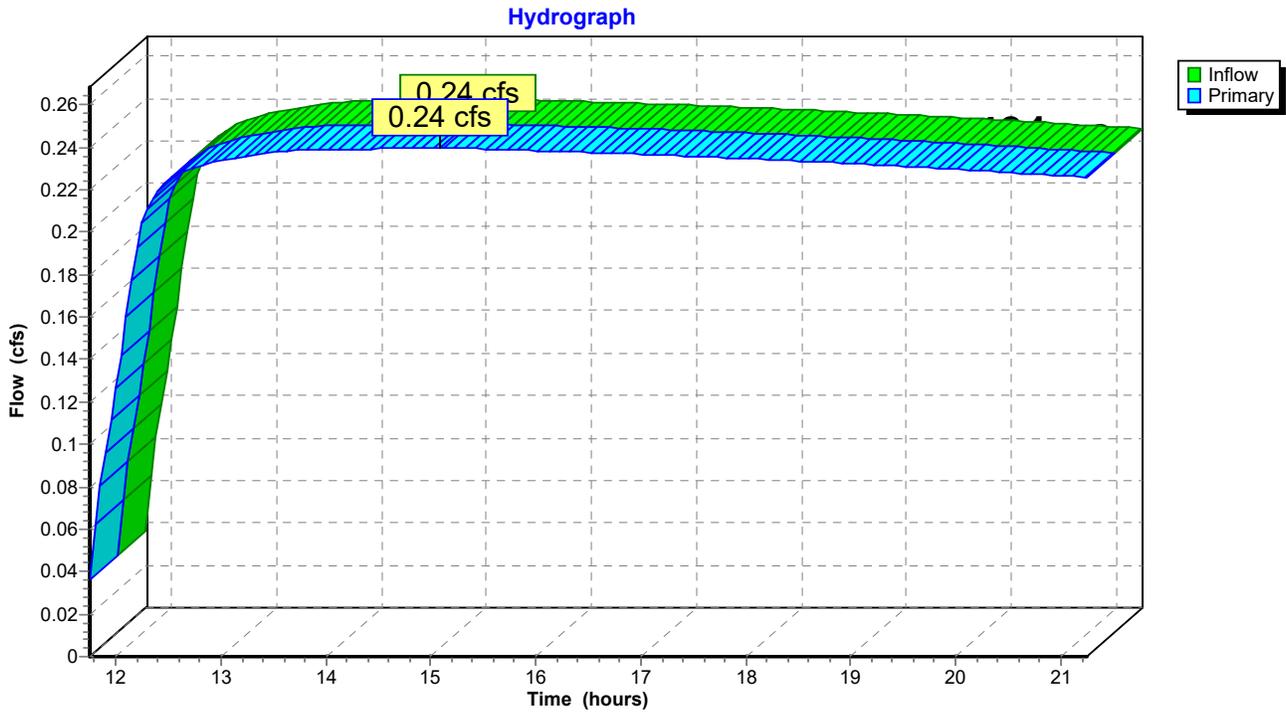
Page 11

Summary for Link 1L: Total Runoff

Inflow Area = 3.431 ac, 77.17% Impervious, Inflow Depth > 0.63" for 2-Year event
Inflow = 0.24 cfs @ 15.09 hrs, Volume= 0.180 af
Primary = 0.24 cfs @ 15.09 hrs, Volume= 0.180 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 11.75-21.25 hrs, dt= 0.05 hrs

Link 1L: Total Runoff



Post Development

MSE 24-hr 3 100-Year Rainfall=6.41"

Prepared by {enter your company name here}

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Page 12

Time span=11.75-21.25 hrs, dt=0.05 hrs, 191 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: To Pond

Runoff Area=149,435 sf 77.17% Impervious Runoff Depth>4.31"
Flow Length=442' Tc=9.4 min CN=90 Runoff=26.21 cfs 1.232 af

Pond 1P: Detention Pond

Peak Elev=983.92' Storage=23,133 cf Inflow=26.21 cfs 1.232 af
Primary=7.89 cfs 0.927 af Secondary=0.00 cfs 0.000 af Outflow=7.89 cfs 0.927 af

Link 1L: Total Runoff

Inflow=7.89 cfs 0.927 af
Primary=7.89 cfs 0.927 af

Total Runoff Area = 3.431 ac Runoff Volume = 1.232 af Average Runoff Depth = 4.31"
22.83% Pervious = 0.783 ac 77.17% Impervious = 2.647 ac

Post Development

MSE 24-hr 3 100-Year Rainfall=6.41"

Prepared by {enter your company name here}

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Summary for Subcatchment 1S: To Pond

Runoff = 26.21 cfs @ 12.16 hrs, Volume= 1.232 af, Depth> 4.31"

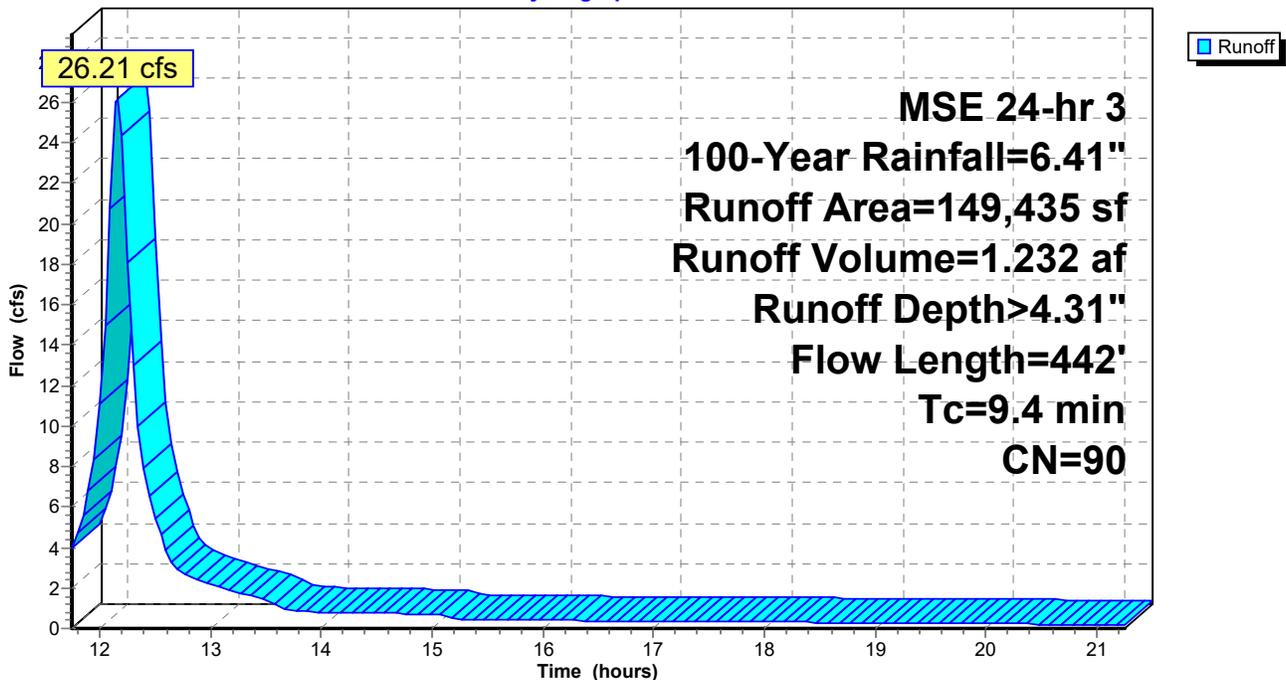
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 11.75-21.25 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=6.41"

	Area (sf)	CN	Description
*	24,860	98	Proposed Buildings
*	90,452	98	Paved parking
	34,123	61	>75% Grass cover, Good, HSG B
	149,435	90	Weighted Average
	34,123		22.83% Pervious Area
	115,312		77.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	42	0.1000	0.17		Sheet Flow, Grass: Dense n= 0.240 P2= 2.65"
5.3	400	0.0070	1.25		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
9.4	442	Total			

Subcatchment 1S: To Pond

Hydrograph



Post Development

MSE 24-hr 3 100-Year Rainfall=6.41"

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Summary for Pond 1P: Detention Pond

Inflow Area = 3.431 ac, 77.17% Impervious, Inflow Depth > 4.31" for 100-Year event
 Inflow = 26.21 cfs @ 12.16 hrs, Volume= 1.232 af
 Outflow = 7.89 cfs @ 12.41 hrs, Volume= 0.927 af, Atten= 70%, Lag= 14.6 min
 Primary = 7.89 cfs @ 12.41 hrs, Volume= 0.927 af
 Secondary = 0.00 cfs @ 11.75 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 11.75-21.25 hrs, dt= 0.05 hrs / 3
 Peak Elev= 983.92' @ 12.41 hrs Surf.Area= 7,535 sf Storage= 23,133 cf

Plug-Flow detention time= 90.0 min calculated for 0.914 af (74% of inflow)
 Center-of-Mass det. time= 35.9 min (826.3 - 790.5)

Volume	Invert	Avail.Storage	Storage Description
#1	977.00'	34,245 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
977.00	725	0	0
978.00	1,340	1,033	1,033
979.00	2,035	1,688	2,720
980.00	2,780	2,408	5,128
981.00	3,575	3,178	8,305
982.00	4,435	4,005	12,310
983.00	5,355	4,895	17,205
984.00	7,725	6,540	23,745
985.00	13,275	10,500	34,245

Device	Routing	Invert	Outlet Devices
#1	Primary	976.44'	12.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 976.44' / 976.00' S= 0.0200 1/ S Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	977.00'	2.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	982.25'	36.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	984.00'	40.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=7.89 cfs @ 12.41 hrs HW=983.92' TW=0.00' (Dynamic Tailwater)

- ↑ 1=Culvert (Inlet Controls 7.89 cfs @ 10.04 fps)
- ↑ 2=Orifice/Grate (Passes < 0.28 cfs potential flow)
- ↑ 3=Orifice/Grate (Passes < 43.95 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 11.75 hrs HW=977.41' TW=0.00' (Dynamic Tailwater)

- ↑ 4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Post Development

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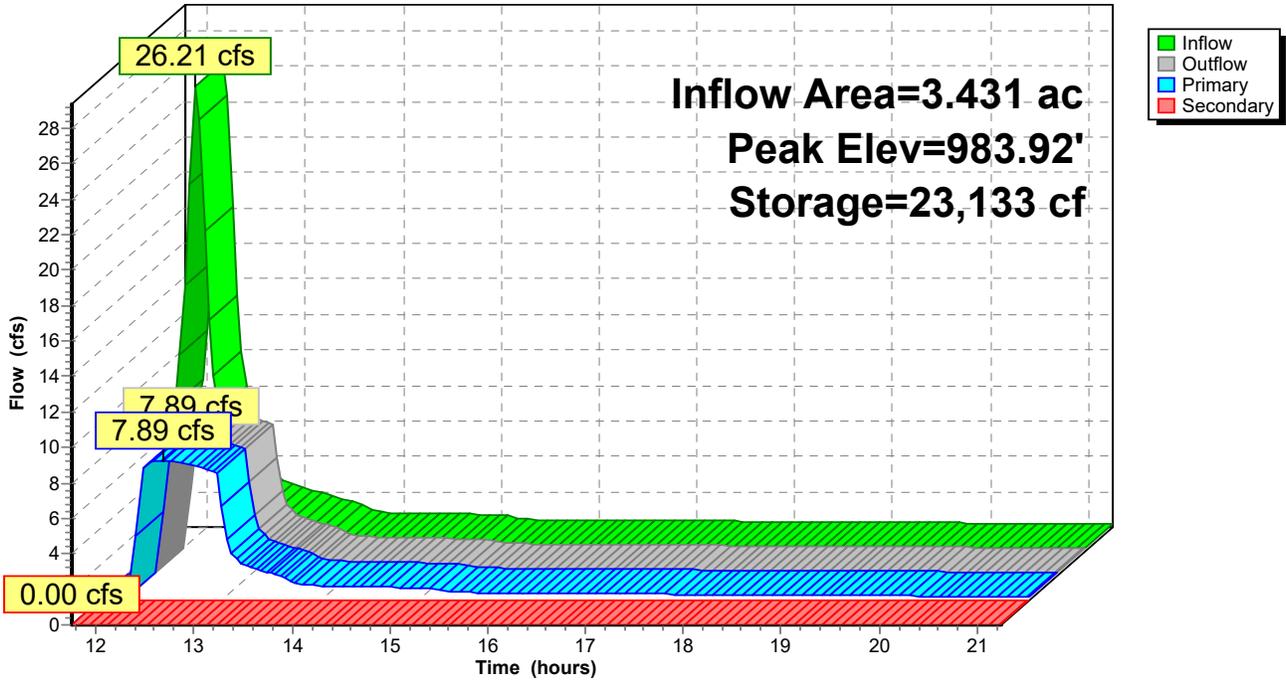
MSE 24-hr 3 100-Year Rainfall=6.41"

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Page 15

Pond 1P: Detention Pond

Hydrograph



Post Development

MSE 24-hr 3 100-Year Rainfall=6.41"

Prepared by {enter your company name here}

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Page 16

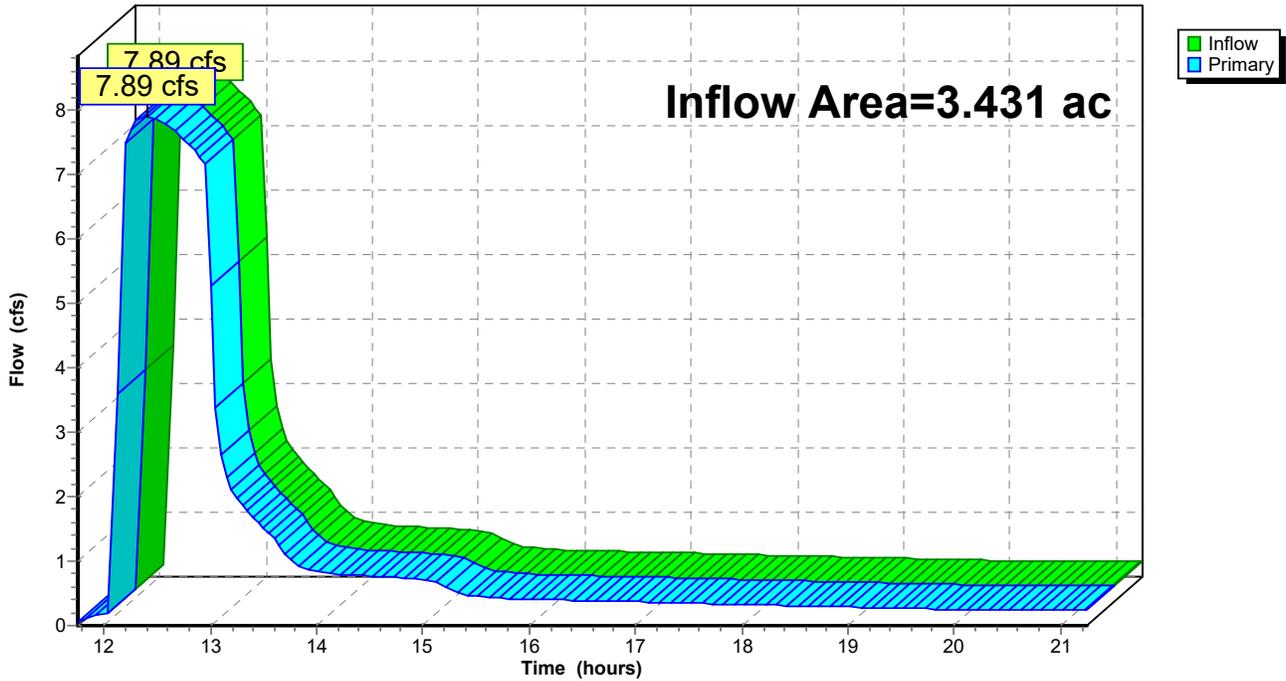
Summary for Link 1L: Total Runoff

Inflow Area = 3.431 ac, 77.17% Impervious, Inflow Depth > 3.24" for 100-Year event
Inflow = 7.89 cfs @ 12.41 hrs, Volume= 0.927 af
Primary = 7.89 cfs @ 12.41 hrs, Volume= 0.927 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 11.75-21.25 hrs, dt= 0.05 hrs

Link 1L: Total Runoff

Hydrograph



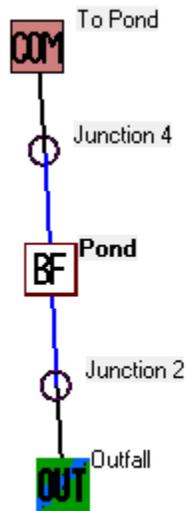
APPENDIX D

TSS REDUCTION CALCULATIONS

TSS REDUCTION CALCULATIONS

TSS Calculations:

The detention pond will remove a minimum of 40% of total suspended solids (TSS). See page 3 below for percent reduction.



WinSLAMM Version 10.4.0

Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN

Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx

Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx

Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std

Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std

Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std

Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std

Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std

Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std

Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False

Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppd

Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv

Cost Data file name:

Seed for random number generator: -42

Study period starting date: 01/05/69 Study period ending date: 12/31/69

Start of Winter Season: 12/06 End of Winter Season: 03/28

Date: 09-07-2021 Time: 09:18:02

Site information:

Old Germantown Farmstead-Village of Germantown, Wisconsin

LU# 1 - Commercial: To Pond Total area (ac): 3.430

1 - Roofs 1: 0.571 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

13 - Paved Parking 1: 2.076 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

45 - Large Landscaped Areas 1: 0.783 ac. Normal Silty Source Area PSD File: C:\WinSLAMM

Files\NURP.cpz

Stormwater Submittal

JT-04-21

9/7/2021

Appendix D-1

Control Practice 1: Biofilter CP# 1 (DS) - Pond

1. Top area (square feet) = 13275
2. Bottom area (square feet) = 725
3. Depth (ft): 8
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 1.63
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0
11. Engineered soil infiltration rate: 0
12. Engineered soil depth (ft) = 0
13. Engineered soil porosity = 0
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 40
2. Weir crest width (ft): 5
3. Height of datum to bottom of weir opening: 7

Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 2
2. Stand pipe height above datum (ft): 5.25

Outlet type: Surface Discharge Pipe

1. Surface discharge pipe outlet diameter (ft): 0.17
2. Pipe invert elevation above datum (ft): 0
3. Number of surface pipe outlets: 1

File Name:

W:\JT-04-21\SWM Submittal\Post-Development.mdb

Outfall Output Summary

	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of All Land Uses without Controls	218913		0.53	107.3	1467	
Outfall Total with Controls	124668	43.05 %	0.30	107.4	836.0	43.01 %
<hr/>						
Current File Output: Annualized Total After Outfall Controls	126400		Years in Model Run:	0.99	847.6	

Print Output
Summary to Text
File

Print Output
Summary to .csv
File

Total Area Modeled (ac)

3.430

Total Control Practice Costs

Capital Cost	N/A
Land Cost	N/A
Annual Maintenance Cost	N/A
Present Value of All Costs	N/A
Annualized Value of All Costs	N/A

Perform Outfall
Flow Duration
Curve Calculations

Receiving Water Impacts Due To Stormwater Runoff (CWP Impervious Cover Model)

	Calculated Rv	Approximate Urban Stream Classification
Without Controls	0.53	Poor
With Controls	0.30	Poor

APPENDIX E

USLE WORKSHEET



Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)



YEAR 1

Developer: TR Capital, LLC

Project: Appleton Avenue Storage Facility

Date: 09/07/21

County: Washington

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	04/01/22	09/01/22	76.0%	120	Silt Loam	0.43	3.3%	212	0.44	1.00	17.3	1.061	Sediment Basin	3.7
Seed with Mulch or Er	09/01/22	11/01/22	17.0%	120	Silt Loam	0.43	3.3%	212	0.44	0.10	0.4	1.061	Sediment Basin	0.1
End	11/01/22	----	----	----	-----	----	3.3%	212	0.44	-----	----	0.000		0.0
		----	----	----	-----	----	3.3%	212	0.44	----	----	0.000		0.0
		----	----	----	-----	----	3.3%	0	----	----	----	0.000		0.0
		----	----	----	-----	----	0.0%	0	----	----	----	0.000		0.0
TOTAL											17.6		TOTAL	3.7
													% Reduction Required	NONE

Notes:

See Help Page for further descriptions of variables and items in drop-down boxes.

The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.

For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

Recommended Permanent Seeding Dates:

4/15-6/1 and 8/1-8/21 Turf, introduced grasses and legumes
 Thaw-6/30 Native Grasses, forbs, and legumes

Designed By:	JIW
Date	9/7/2021

APPENDIX F

STORMWATER MAINTENANCE AGREEMENT

**STORM WATER MANAGEMENT PRACTICES
MAINTENANCE AGREEMENT**

THIS AGREEMENT, made and entered into this _____ day of _____, 20____, by and between TR Capital, LLC, hereinafter called the “Owner,” and the Village of Germantown, a municipal corporation located in Washington County, Wisconsin, hereinafter called the “Village.”

WITNESSETH:

WHEREAS, the Owner is the owner of the following described lands situated in the Village of Germantown, Washington County, State of Wisconsin:

Being a part of the Northeast ¼ of the Southwest ¼ of Section 19, Town 9 North, Range 20 East, Village of Germantown, Washington County, Wisconsin.

hereinafter called the “Property.”

WHEREAS, the Owner is developing the Property; and

WHEREAS, the Site Plan known as Appleton Avenue Storage, hereinafter called the “Plan,” which is expressly made a part hereof, as approved or to be approved by the Village, provides for on-site storm water management practices within the confines of the Property; and

WHEREAS, the Village and the Owner agree that the health, safety and welfare of the residents of the Village of Germantown, require that on-site storm water management practices be constructed and maintained on the Property; and

WHEREAS, the Village requires that on-site storm water management facilities as shown on the Plan be constructed and adequately maintained by the Owner.

NOW, THEREFORE, in consideration of the foregoing recitals, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The on-site storm water management facilities shall be constructed by the Owner in accordance with the plans and specifications indicated in the Plan and applicable statutes, ordinances and rules. The storm water management practices shall serve the drainage area designated in the Plan.
2. The Owner shall regularly inspect the storm water management facilities and specifically the function of the approved storm water management system as often as conditions require, but in any event at least once each year. The Operations and Maintenance Manual attached to this agreement as Exhibit A and each by this reference made a part hereof, shall be followed for the regular inspections of the storm water management facilities. The Owner shall keep the operation and maintenance reports from past inspections as well as a log of maintenance activities indicating the date and type of maintenance completed. The reports and maintenance log shall be submitted to the Department of Public Works Director and retained by the Village

Return to:
Village of Germantown
N112 W17001 Mequon Road
Germantown, WI 53022

Parcel No.: GTNV_193.975

for a period of 10 years. The purpose of the inspections is to assure safe and proper functioning of the facilities. The inspections shall cover all facilities including, but not limited to, berms, outlet structures, pond areas and access roads. Deficiencies shall be noted in the operation and maintenance reports.

3. The Owner shall adequately maintain the storm water management facilities including, but not limited to, all pipes and channels built to convey storm water to the facility, as well as all structures, improvements and vegetation provided to control the quantity and quality of the storm water. Adequate maintenance, in accordance with Exhibit A, is herein defined as keeping the storm water management facilities in good working condition so that these facilities are performing their design functions and are maintained in accordance with the Plan.
4. The Owner hereby grants permission to the Village, its authorized agents and employees, to enter upon the Property and to inspect the storm water management facilities whenever the Village deems necessary. The purpose of the Village's inspection is to investigate reported deficiencies and/or to respond to citizen complaints. The Village shall provide the Owner with copies of the inspection findings and a directive to commence with repairs if necessary. Corrective actions shall be taken within a reasonable timeframe as established by the Department of Public Works Director.
5. If the Owner fails to maintain the storm water management facilities in good working condition, consistent with the terms of the Plan and does not perform the required corrective actions and inspections in the specified time, the Village may perform the corrective actions identified in the inspection report and charge the Owner for the cost of such work. If the Owner fails to pay such costs to the Village within 30 days as required by Section 7, below, the cost of such work may be specially assessed against the Property pursuant to Wisconsin Statutes Section 66.0703. The Owner hereby acknowledges that the Property benefits from the corrective actions taken by the Village and hereby waives any right to notice or hearing of said special assessment pursuant to Section 66.0703(7)(b), Stats.
6. The Owner shall perform the work necessary to keep the storm water management facilities in good working order as appropriate. In the event a maintenance schedule for the storm water management facilities (including sediment removal) is outlined on the approved plans, the schedule shall be followed. The minimal amount of maintenance on the storm water management facilities shall be in accordance with Exhibit A.
7. In the event the Village, pursuant to this Agreement, performs work of any nature or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Owner shall reimburse the Village within 30 days of receipt of an invoice for all actual costs incurred by the Village hereunder.
8. This Agreement imposes no liability of any kind whatsoever on the Village, its officers, agents and employees, and the Owner agrees to indemnify and hold the Village harmless as and against any and all claims, actions, causes of action, demands, including attorney fees and court costs which the Village may incur as a result of the failure of the storm water management system and/or actions taken or not taken by the Village to enforce the terms of this Agreement including, but not limited to, the performance of maintenance activities.
9. This Agreement shall be recorded at the Washington County Register of Deeds Office and shall constitute a covenant running with the land and shall be binding on the Owner, its administrators, executors, assigns, heirs and any other successors in interests or future owners of the Property, including any homeowners or condominium association.

10. Notwithstanding anything in this Agreement to the contrary, in the event the Owner, or the Owner's successors and assigns, sell or otherwise transfer ownership in the Property, the Owner or the successor or assigns making said transfer, is hereby released from any and all liabilities and obligations under the terms of this Agreement. The liabilities and obligations under this Agreement shall transfer with the ownership of the Property to the new owner of the Property.

VILLAGE OF GERMANTOWN

By: _____
Steven Kreklow, Village Administrator

Dated: _____

By: _____
Deanna Braunschweig, Village Clerk

Dated: _____

ACKNOWLEDGMENT

STATE OF WISCONSIN)
)ss.
WASHINGTON COUNTY)

Personally came before me the ____ day of _____, 2____ the above named Steven Kreklow, to me known to be the Village Administrator of the Village of Germantown and to me known to be the person who executed the foregoing document and acknowledged the same.

Notary Public, State of Wisconsin
Washington County.
My Commission is permanent. (If NOT, expiration date is: _____)

ACKNOWLEDGMENT

STATE OF WISCONSIN)
)ss.
WASHINGTON COUNTY)

Personally came before me the ____ day of _____, 2____ the above named Deanna Braunschweig, to me known to be the Clerk of the Village of Germantown and to me known to be the person who executed the foregoing document and acknowledged the same.

Notary Public, State of Wisconsin
Washington County.
My Commission is permanent. (If NOT, expiration date is: _____)

TR Capital, LLC

By: _____ Dated: _____
 Name, Title

*This Document Drafted By Jonathan Worden
 Quam Engineering, LLC*

September 7, 2021

Exhibit A

Operation and Maintenance Manual

This exhibit explains the basic function of each of the storm water facilities and prescribes the minimum maintenance requirements to remain compliant with conditions of development approval, storm water management plan approval, and Village ordinances and policies. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity.

Minimum Maintenance Requirements:

To ensure the proper function of the storm water management facilities, the following activities must be completed:

Detention Basin

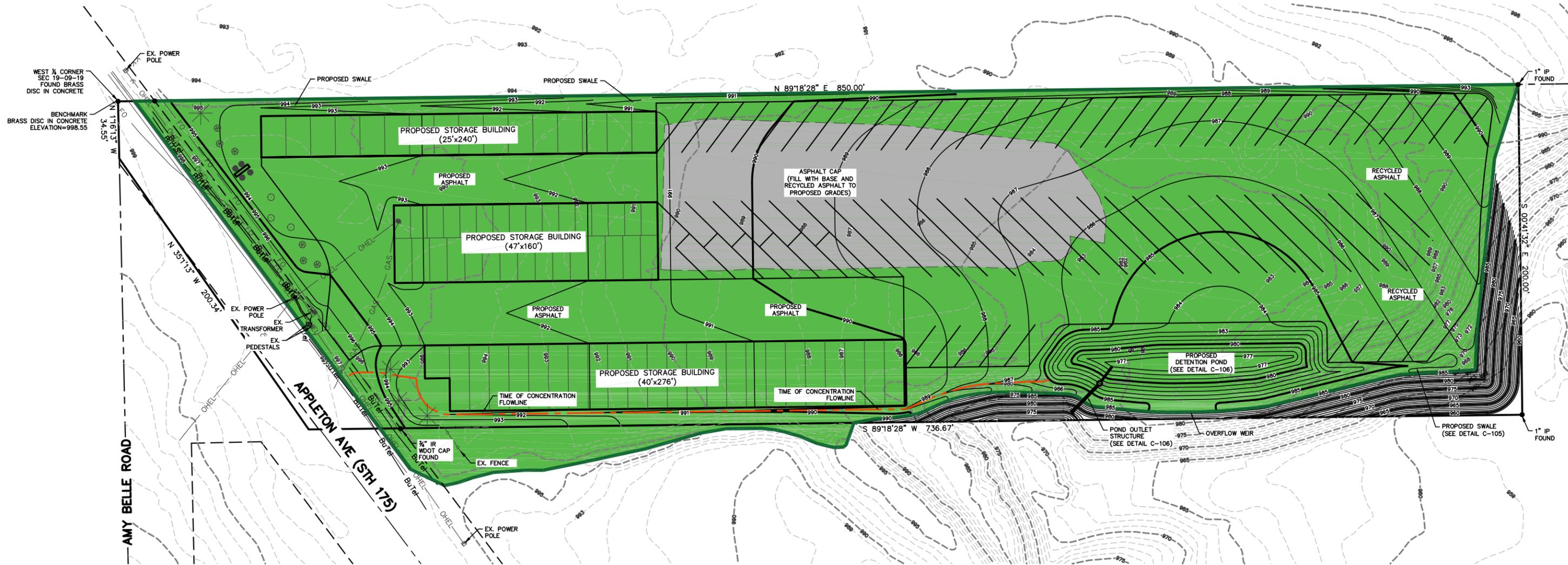
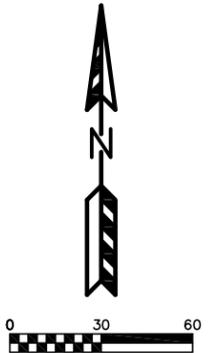
1. Outlet structures and outlet pipes shall be kept clear of debris. Non-structurally sound devices shall be replaced. Litter and debris shall be removed. All grassed areas, embankments and flow control devices showing signs of erosion shall be repaired to the original plan requirements.
2. The Owner shall visually inspect the basin outlet structures and basin perimeters annually. The basin perimeter areas shall be mowed a minimum of twice per year.
3. Mowing shall maintain a minimum grass height of 6 to 8 inches. All undesirable vegetation and volunteer tree growth shall be removed, including close proximity to the outlet structures.
4. No plantings or structures of any kind are permitted within the detention basin areas, without prior written approval of the Village.
5. Siltation in the basins shall be dredged and disposed offsite in accordance with NR 528.
6. The Owner shall maintain records of all inspections.

Grassed Swales:

- Swales should be inspected periodically during the first year of use and after all major storm events in perpetuity for possible erosion to the channel.
- Trash and other debris should be removed seasonally.
- Ditch Checks should be inspected for evidence of bypassing.
- Channelization, barren areas, and low spots within the channel should be repaired and reseeded.
- Accumulated biomass should be removed periodically.

APPENDIX G

Exhibits



Proposed Area Table	
Description	Area (sf)
Total Lot Area	150,873
Building	24,860
Asphalt	90,452
Total Impevious Area	115,312
% Impervious	76.4
Total Green Space	35,561
% Green Space	23.6

PROPOSED DRAINAGE AREAS

TO POND
AREA=149,435 s.f.
CN=90



APPLETON AVENUE STORAGE FACILITY
 PROPOSED DRAINAGE PLAN
 DATED: SEPTEMBER 7, 2021

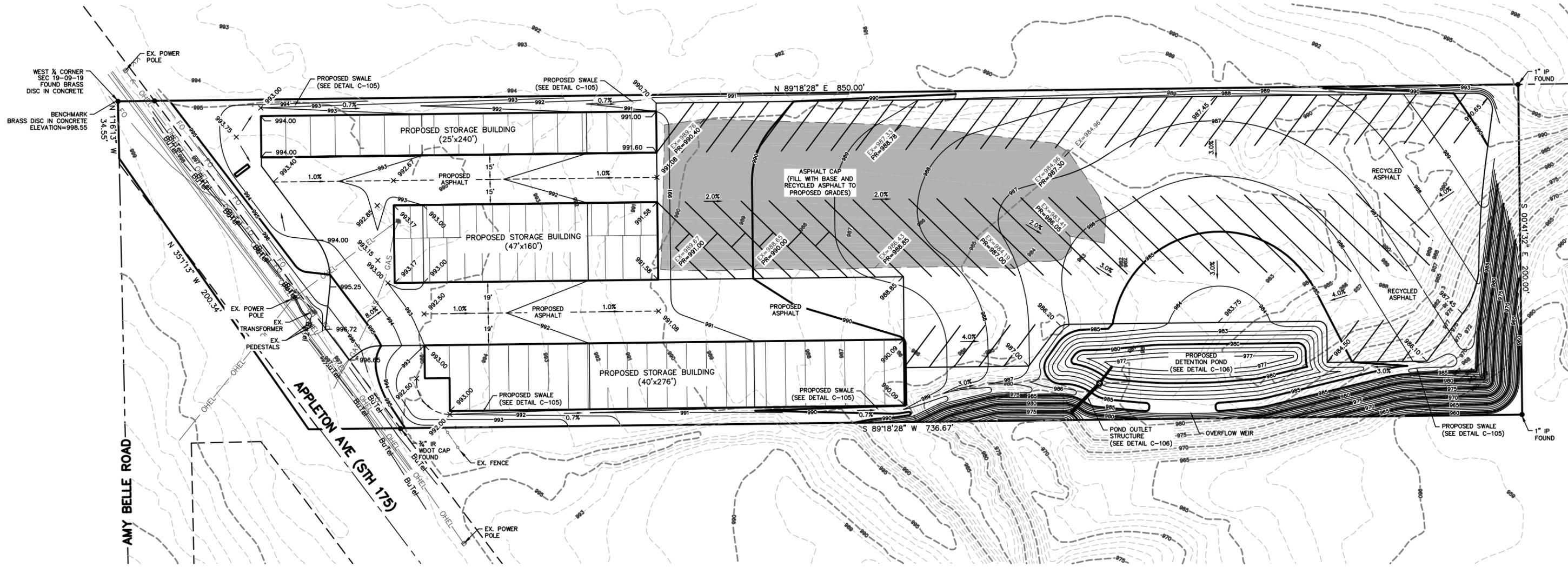
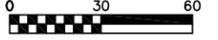
C-201

QUAM ENGINEERING, LLC
 Residential and Commercial Site Design Consultants

122 Wisconsin Street; West Bend, Wisconsin 53095
 Phone (262) 346-7800; www.quamengineering.com

LEGEND:

- - - 936 - - - EXISTING MINOR CONTOUR.
- - - 935 - - - EXISTING MAJOR CONTOUR.
- - - 936 - - - PROPOSED MINOR CONTOUR.
- - - 935 - - - PROPOSED MAJOR CONTOUR.
- EX=934.23 - EXISTING SPOT ELEVATION.
- 934.23 - PROPOSED SPOT ELEVATION.
- PROPOSED STORM SEWER.



APPLETON AVENUE STORAGE FACILITY
 GRADING PLAN
 DATED: SEPTEMBER 7, 2021

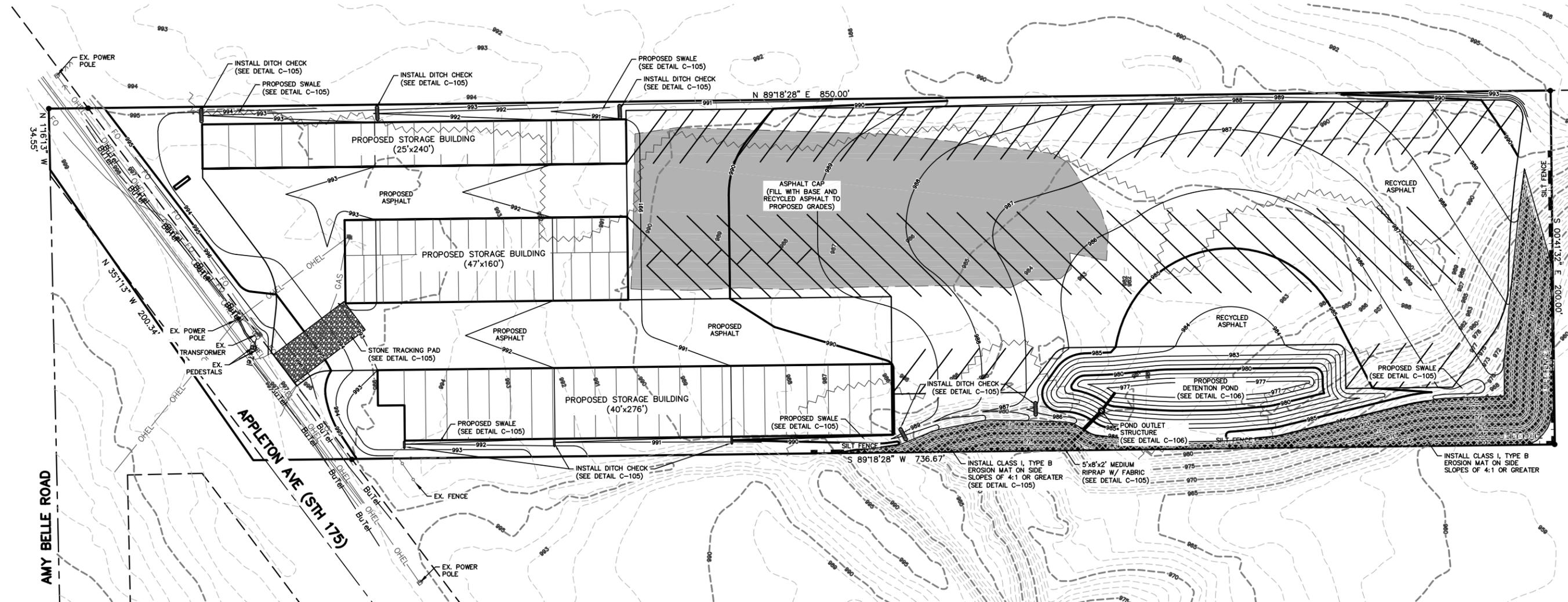
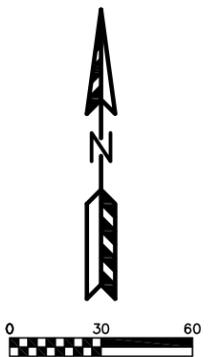
C-103

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 Residential and Commercial Site Design Consultants

122 Wisconsin Street; West Bend, Wisconsin 53095
 Phone (262) 346-7800; www.quamengineering.com

LEGEND:

- - - 936 - - - EXISTING MINOR CONTOUR.
- - - 935 - - - EXISTING MAJOR CONTOUR.
- 936 — PROPOSED MINOR CONTOUR.
- 935 — PROPOSED MAJOR CONTOUR.
- PROPOSED STORM SEWER.
- INSTALLED SILT FENCE
- — — — — INSTALLED DITCH CHECK



TIME SCHEDULE:

APRIL 1, 2022
 INSTALL SILT FENCE AND TEMPORARY CONSTRUCTION ENTRANCE AS SHOWN ON PLANS.

APRIL 2, 2022 - SEPTEMBER 1, 2022
 DEMO EXISTING BUILDINGS, CRUSH CONCRETE AND ASPHALT AND STOCKPILE FOR USE AS FILL.
 STRIP TOPSOIL AND CONSTRUCT TEMPORARY TOPSOIL STOCKPILE LOCATION ACCORDING TO "SPECIFICATIONS FOR GRADING & EROSION CONTROL" ON "CONSTRUCTION NOTES PAGE".
 BEGIN PROPOSED SITE GRADING INCLUDING BUILDING PAD PREPARATION.
 INSTALL BASE COURSE, PAVEMENT, AND RECYCLED ASPHALT.

SEPTEMBER 2 - 15, 2022
 ALL PERMANENT SEEDING SHALL BE COMPLETED BY SEPTEMBER 15. ALL TEMPORARY SEEDING SHALL BE COMPLETED BY OCTOBER 15 (REFER TO DNR STANDARD 1059.)
 STABILIZATION FOR ALL EXPOSED SOIL AFTER OCTOBER 15 SHALL CONSIST OF ANIONIC POLYACRYLAMIDE (PAM) IN ADDITION TO TEMPORARY SEEDING IN AREAS WITHOUT EROSION CONTROL MAT. PLACE PAM IN ACCORDANCE WITH WDNr TECHNICAL STANDARD 1050. AFTER OCTOBER 15 ALL SLOPES 4:1 OR STEEPER THAT ARE NOT PERMANENTLY VEGETATED SHALL HAVE EROSION MAT INSTALLED IN PREPARATION OF WINTER CONDITIONS.
 SPREAD SALVAGED OR IMPORTED TOPSOIL IN PROPOSED LANDSCAPE AREAS AND RESTORE.
 CONTRACTOR MAY MODIFY SEQUENCING AS NEEDED TO COMPLETE CONSTRUCTION IF EROSION CONTROLS ARE MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS SET FORTH IN FEDERAL, STATE & LOCAL PERMITS. NOTIFY CITY OF MILWAUKEE PRIOR TO CHANGE.
 AS CONDITIONS WARRANT DURING CONSTRUCTION ADDITIONAL BMPs SHALL BE INSTALLED TO REDUCE THE MIGRATION OF SEDIMENT THE THE MAXIMUM EXTENT PRACTICABLE.
 REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AFTER SITE IS STABILIZED AND STABILIZE AND AREAS DISTURBED BY REMOVAL OF BMPs.

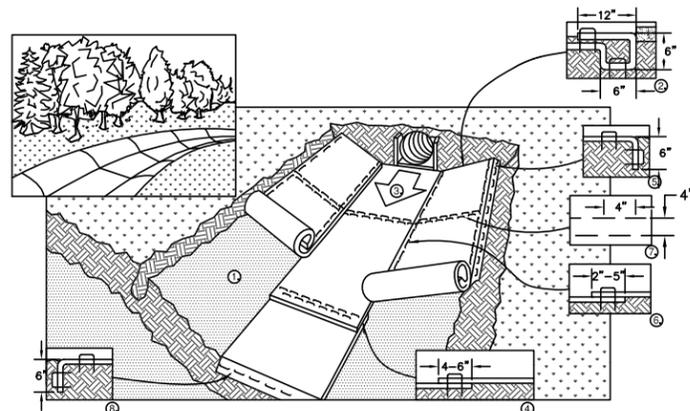
APPLETON AVENUE STORAGE FACILITY
 EROSION CONTROL PLAN
 DATED: SEPTEMBER 7, 2021

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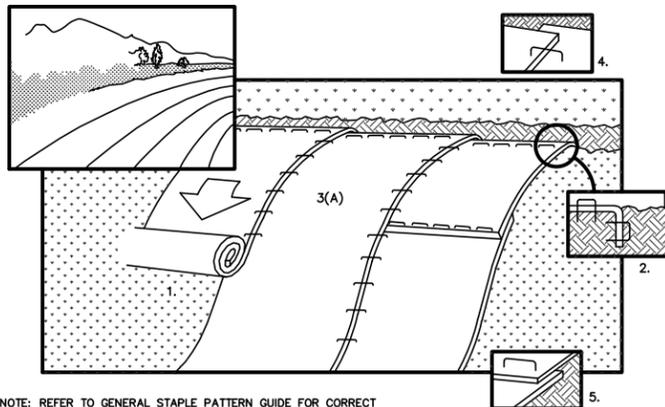
MAXIMUM PERIOD OF BARE SOIL FOR SLOPES > 20%		
SLOPE AREA DRAINS TO SEDIMENT BASIN OR SEDIMENT TRAP?	MAXIMUM PERIOD OF BARE SOIL EXPOSURE (CALENDAR DAYS)	
	LAND DISTURBANCE BETWEEN SEPTEMBER 16TH AND MAY 1ST	LAND DISTURBANCE BETWEEN MAY 2ND AND SEPTEMBER 15TH
YES	90	90
NO	60	30



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS RECOMMENDED BY THE MANUFACTURER.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPE MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 4" AND STAPLED.
7. A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTE: ALL STAPLES MUST BE 6" OR GREATER IN LENGTH

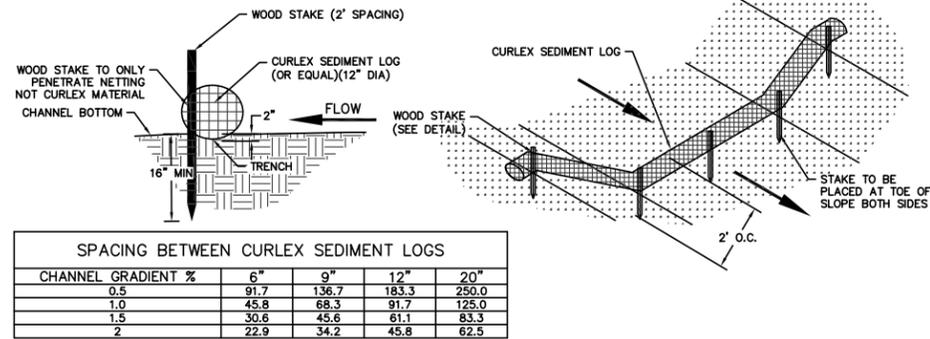
EROSION CONTROL MAT - CHANNEL INSTALLATION



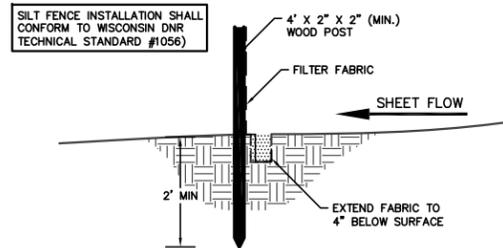
NOTE: REFER TO GENERAL STAPLE PATTERN GUIDE FOR CORRECT STAPLE PATTERN RECOMMENDATIONS FOR SLOPE INSTALLATIONS.

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND SEED. NOTE: WHEN USING CELL-0-SEED DO NOT SEED PREPARED AREA. CELL-0-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
6. ALL BLANKETS MUST BE SECURELY FASTENED TO THE SLOPE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS RECOMMENDED BY THE MANUFACTURER.

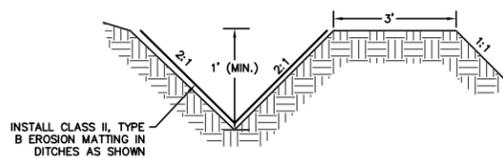
EROSION CONTROL MAT - SLOPE INSTALLATION



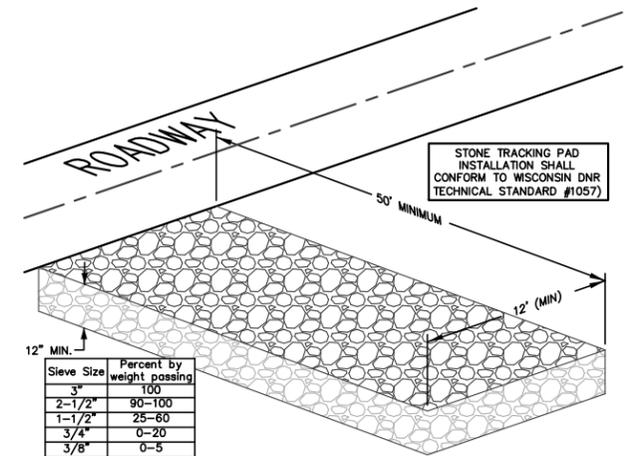
SEDIMENT LOG DETAIL



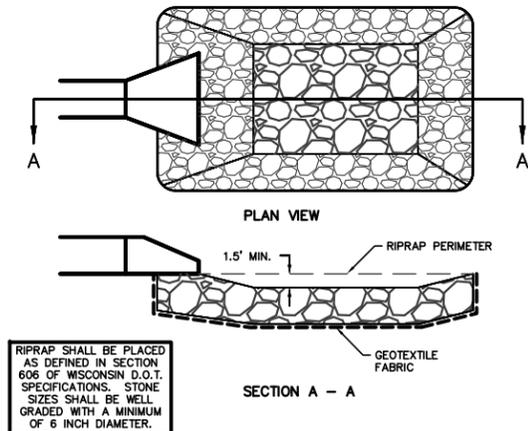
SILT FENCE CONSTRUCTION (SHEET FLOW)



BERM/SWALE DETAIL



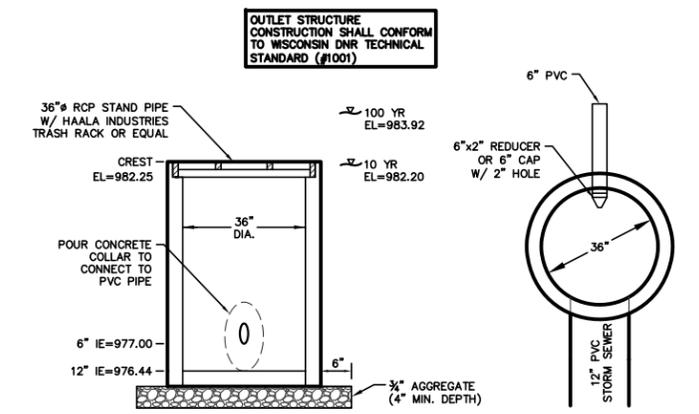
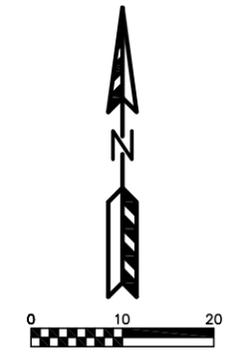
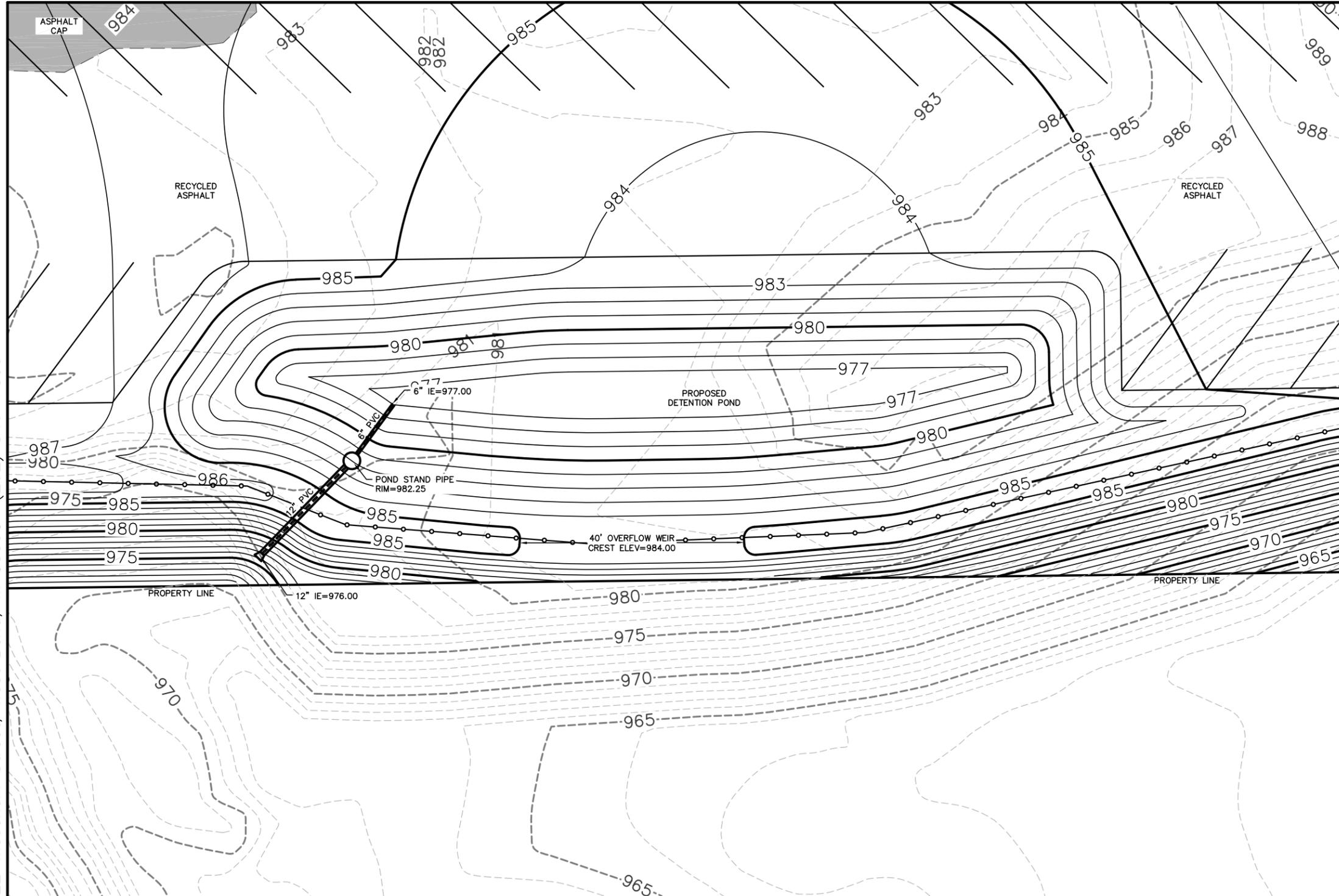
STONE TRACKING PAD DETAIL



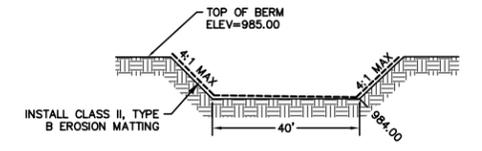
RIPRAP/STILLING BASIN DETAIL

APPLETON AVENUE STORAGE FACILITY
 EROSION CONTROL DETAILS
 DATED: SEPTEMBER 7, 2021

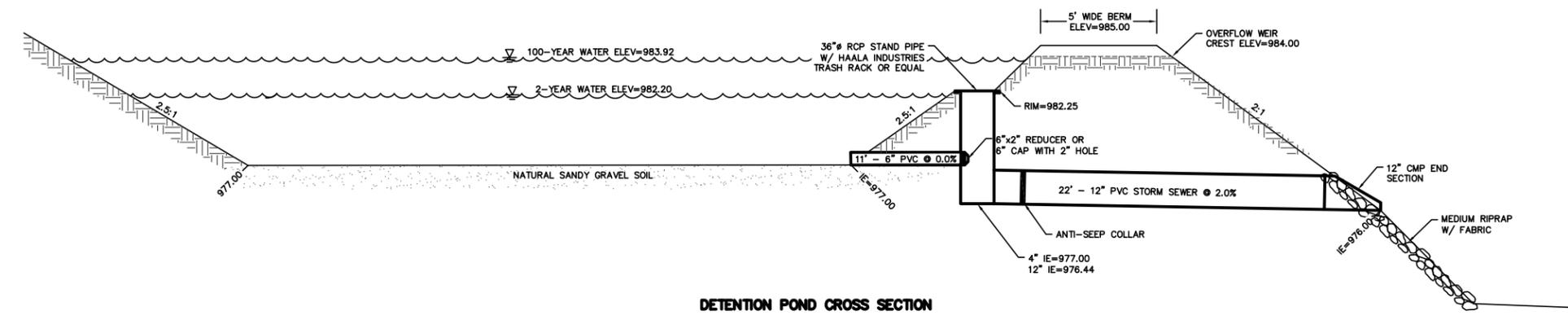
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STAND PIPE DETAIL



OVERFLOW WEIR CROSS SECTION



DETENTION POND CROSS SECTION

APPLETON AVENUE STORAGE FACILITY
 STORMWATER MANAGEMENT PLAN AND DETAILS
 DATED: SEPTEMBER 7, 2021

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