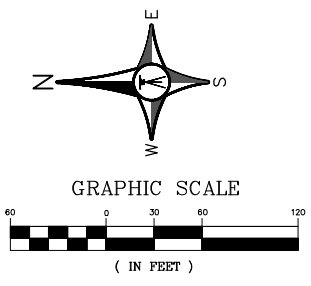




**SHEET INDEX**

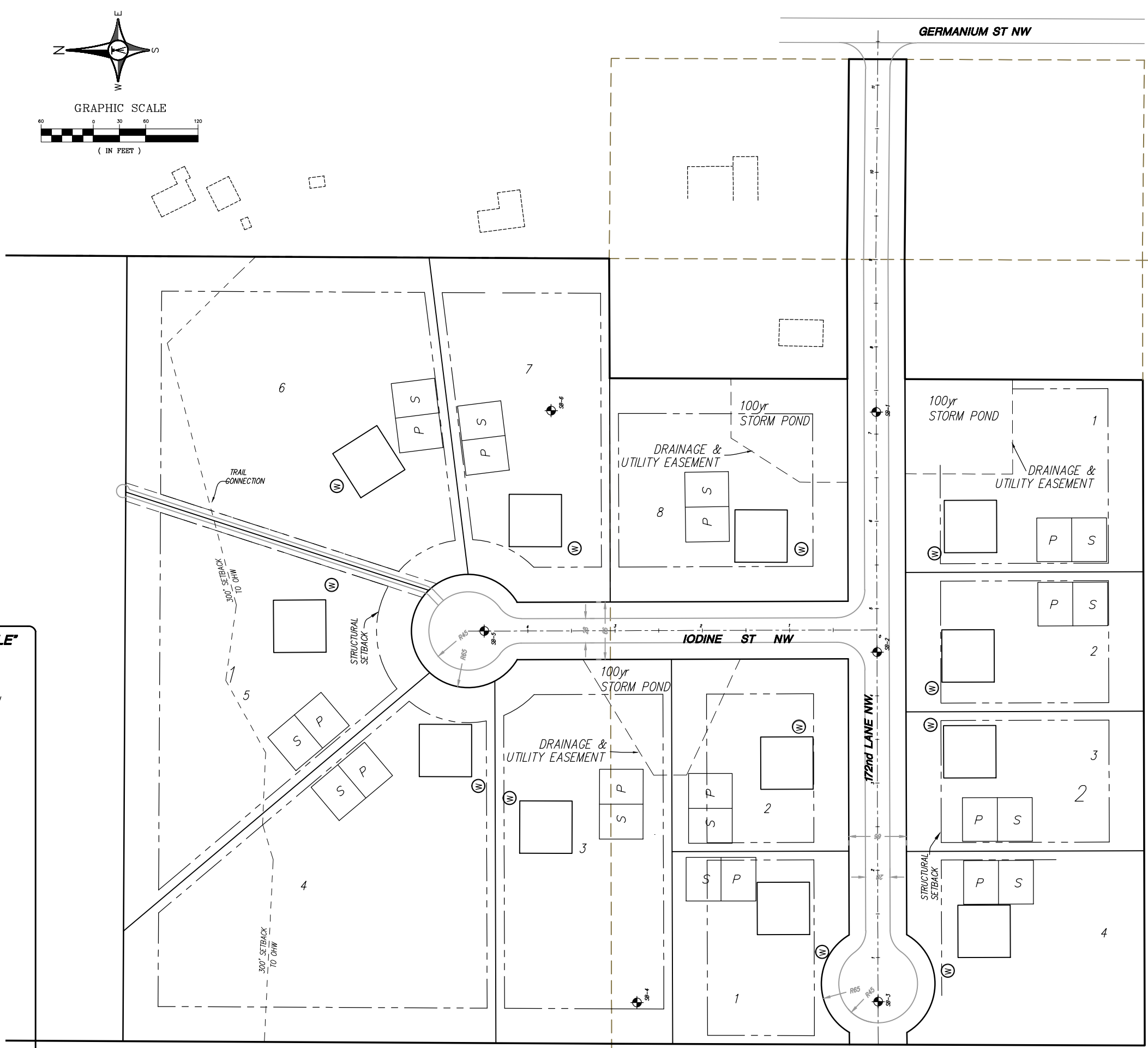
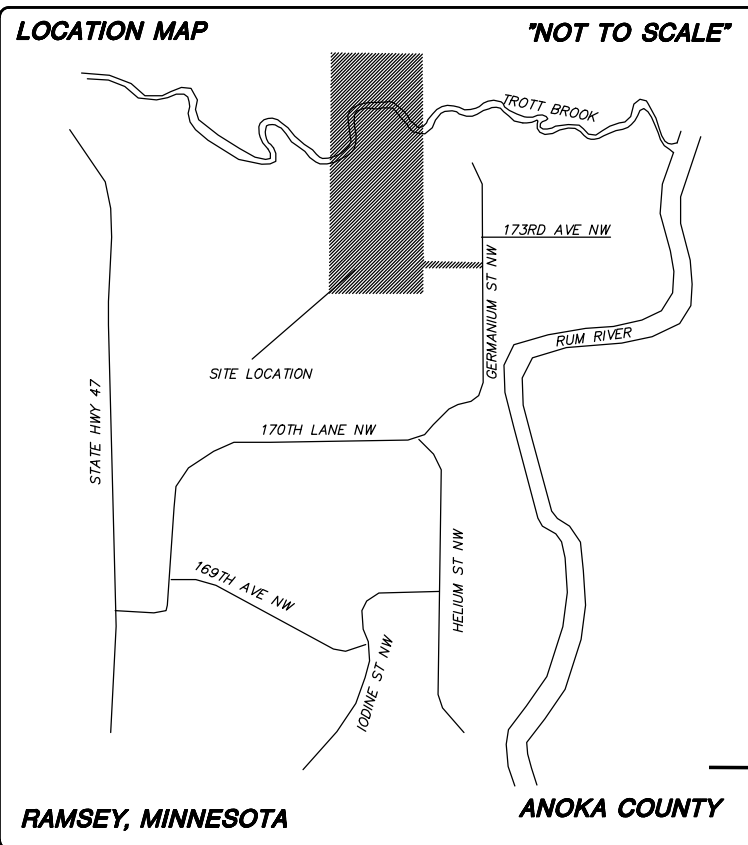
- C0 COVER SHEET
- STORM SEWER AND STREET CONSTRUCTION
- C1 172nd AVE NW
- C2 IODINE ST NW
- EROSION CONTROL, LANDSCAPING AND DETAILS
- G1 GRADING PLAN
- D1 DETAILS
- D2 DETAILS
- D3 DETAILS
- SW 1 STORMWATER POLLUTION PREVENTION PLAN
- SW 2 STORMWATER POLLUTION PREVENTION PLAN
- L1 OVERALL LANDSCAPING PLAN
- T1 TREE PLAN
- T2 TREE PLAN



**LINE TYPE & SYMBOL LEGEND**

	DENOTES SOIL BORING		
<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>P</td><td>S</td></tr></table>	P	S	DRAIN FIELD LOC P = PRIMARY S = SECONDARY
P	S		
	PROPOSED WELL LOC.		
	SETBACK		
	EASEMENT		
	LOT LINE		
	R/W		
	EDGE OF BITUMINOUS CENTERLINE		

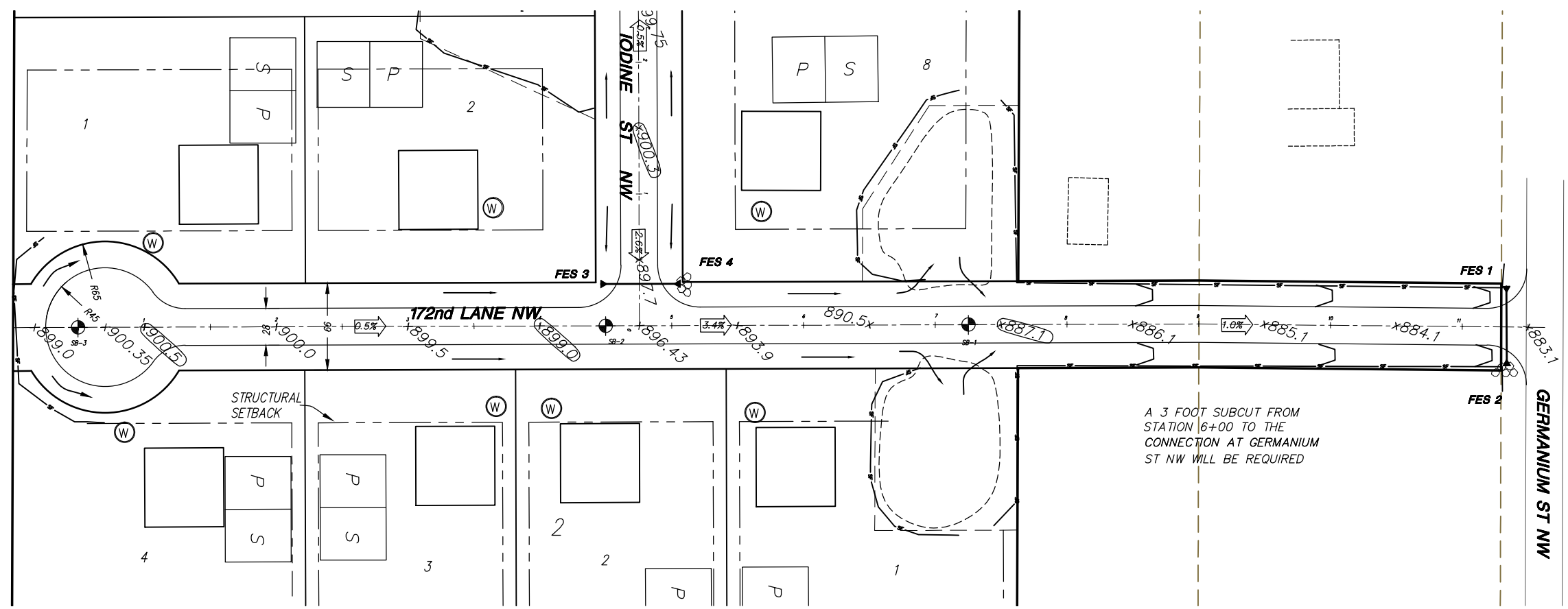
**OWNER:**  
**Eric Thomsen**  
 6210 Green Valley Road  
 Ramsey, Minnesota 55303  
 Phone: (612) 919-6862



<b>DATE</b>	3/23/17	<b>REVISIONS</b>	ADDED SHEET TO SET	<b>BY</b>	BR
	5/4/17		3 STORM PONDS		BR
<b>ROSELL ENGINEERING, LLC</b>					
6192 267 TH CT WYOMING, MN 55092					
PHONE: 763.286.0521					
<b>COVENANT MEADOWS</b>					
COVER SHEET					
RAMSEY, MINNESOTA					
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR STATEMENT OF WORK WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.					
				DATE: 3/23/17      REG. NO. 24019  BRENT ROSSELL	
<b>DRAWN</b>	BR	<b>DATE</b>	12/19/16	<b>SCALE</b>	AS SHOWN
<b>CHECKED</b>	BR	<b>PROJECT</b>	RE-32	<b>APPROVED</b>	BR
C0					

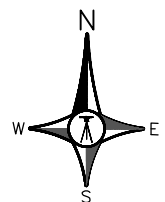
172ND LANE NW IS 1163 FEET IN LENGTH FROM THE CENTERLINE OF GERMANIUM ST NW TO THE WESTERN BOUNDARY OF THE PLAT.

SEE SHEET C2

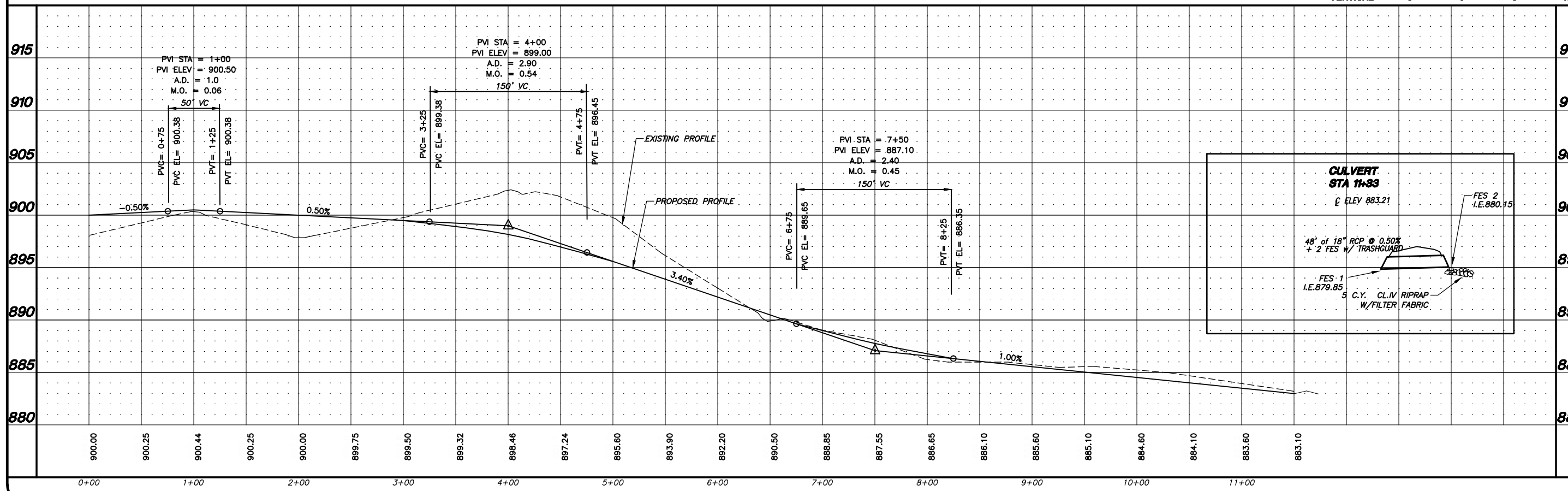


**LINE TYPE & SYMBOL LEGEND**

	FLARED END SECTION
	STORM SEWER
	DENOTES SOIL BORING
	DRAIN FIELD LOC
	P = PRIMARY
	S = SECONDARY
	PROPOSED WELL LOC.
	SILT FENCE
	SETBACK
	EASEMENT
	LOT LINE
	R/W
	EDGE OF BITUMINOUS
	CENTERLINE



A 3 FOOT SUBCUT FROM STATION 6+00 TO THE CONNECTION AT GERMANIUM ST NW WILL BE REQUIRED



DATE	REVISIONS
3/23/17	LEGEND
5/4/17	3 PONDS

**ROSELL ENGINEERING, LLC**  
 6192 267 TH CT WYOMING, MN 55092  
 PHONE: 763.286.0521

**COVENANT MEADOWS**  
 STREET & STORM SEWER  
 172nd LANE NW  
 RAMSEY, MINNESOTA

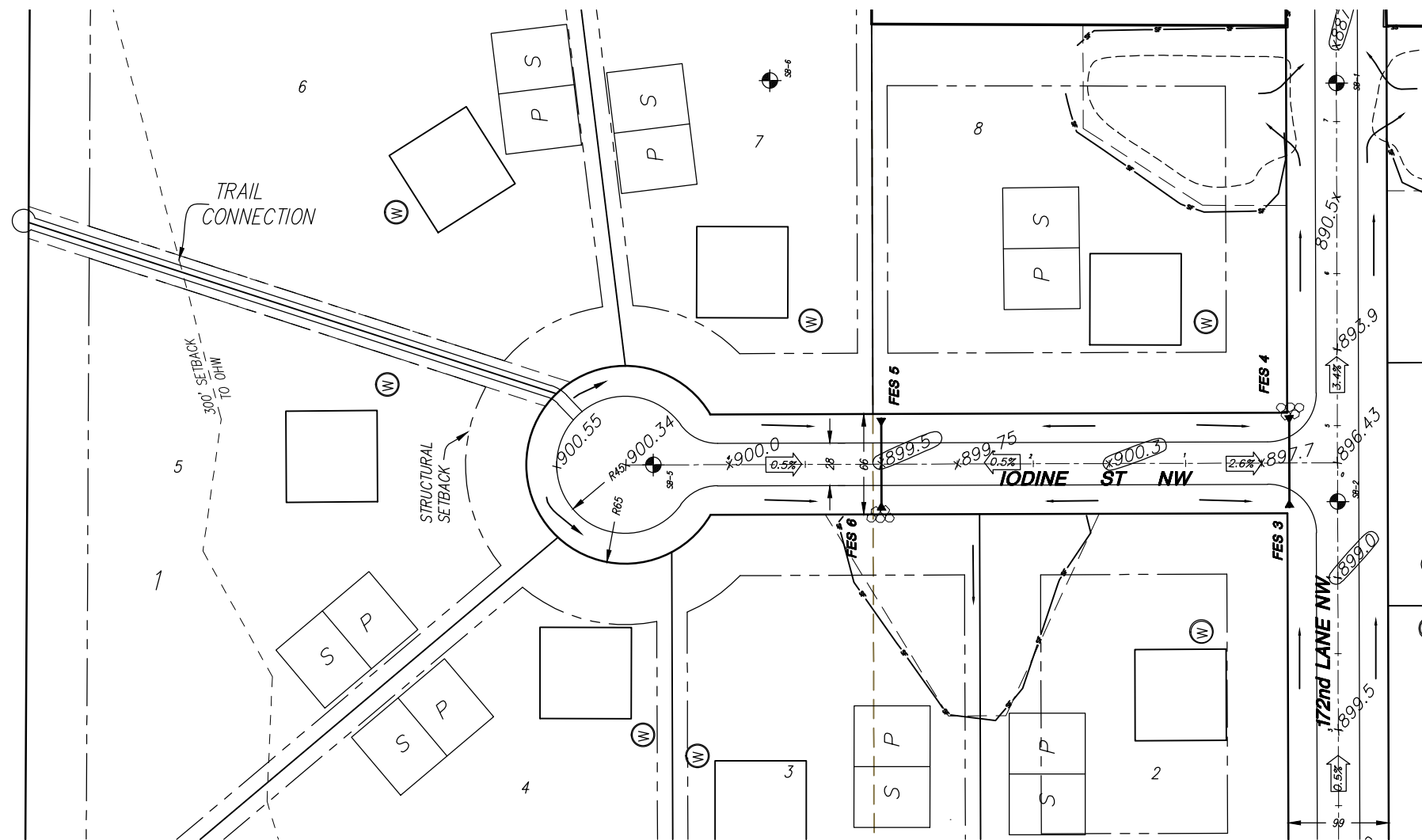
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR DETAIL WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 DATE: 2/2/17 REG. NO. 24219  
 BRENT ROSSELL

DATE	SCALE	PROJECT	CHECKED	APPROVED
12/19/16	1"=60'	RE-32	BTR	BTR

**C1**

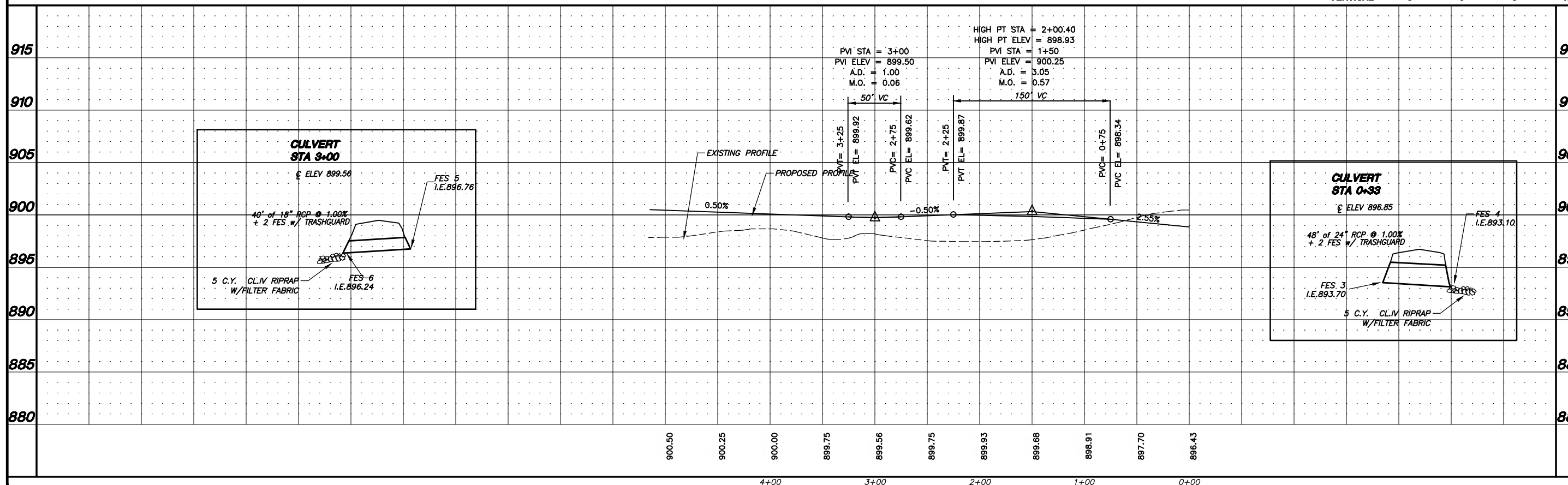
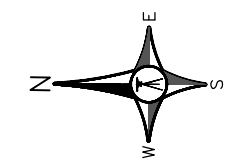
**LINE TYPE & SYMBOL LEGEND**

- ◄ FLARED END SECTION
- STORM SEWER
- SB-5 DENOTES SOIL BORING
- P S DRAIN FIELD LOC  
P = PRIMARY  
S = SECONDARY
- W PROPOSED WELL LOC.
- SF SILT FENCE
- SETBACK
- EASEMENT
- LOT LINE
- R/W
- EDGE OF BITUMINOUS
- CENTERLINE



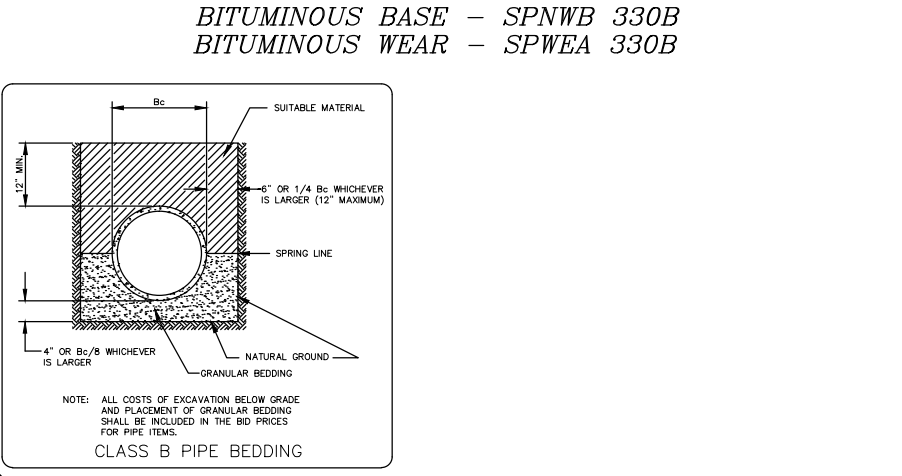
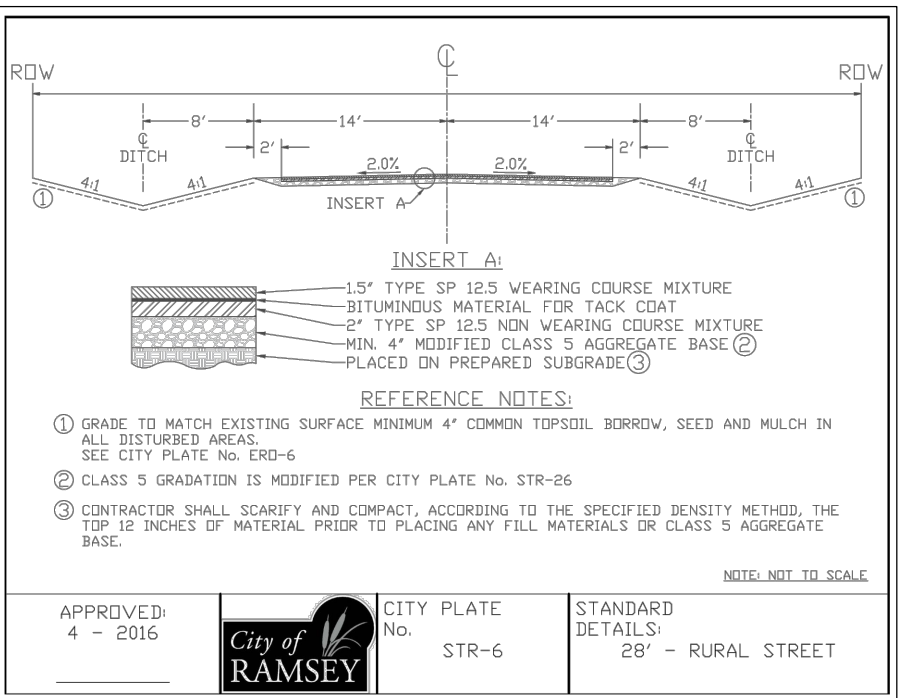
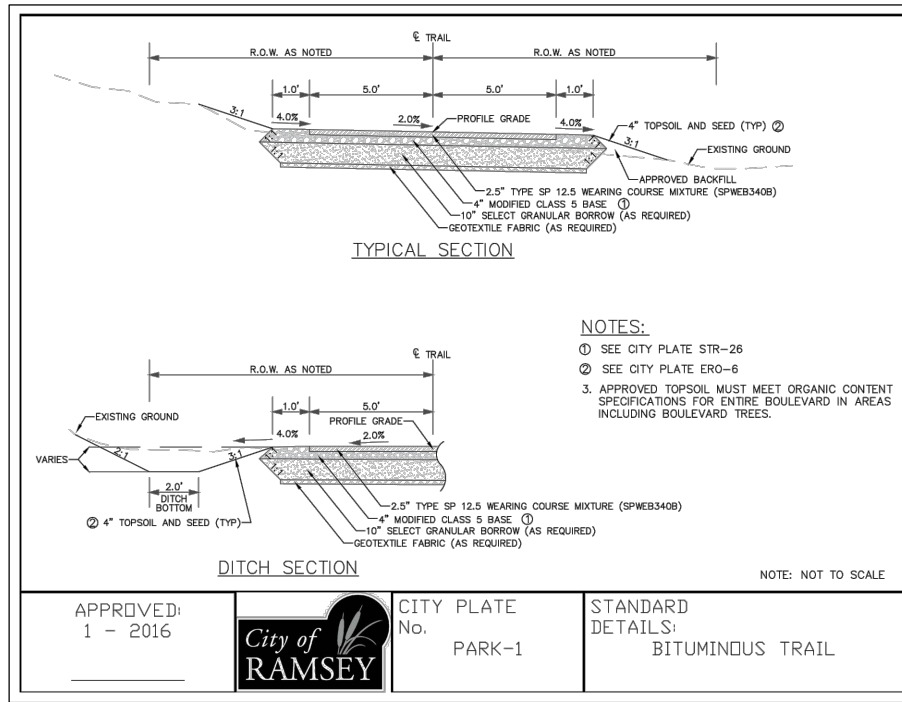
IODINE ST NW IS 513 FEET IN LENGTH FROM THE CENTERLINE OF 172ND LANE NW TO THE NORTH EDGE OF THE CUL-DE-SAC TRAVEL SURFACE

SEE SHEET C1



BY		REVISIONS		DATE	
BR		LEGEND		3/23/17	
BR		3 PONDS		5/4/17	
<b>ROSELL ENGINEERING, LLC</b> 6192 267 TH CT WYOMING, MN 55092 PHONE: 763.286.0521					
<b>COVENANT MEADOWS</b> STREET & STORM SEWER IODINE ST NW RAMSEY, MINNESOTA					
DRAWN	DATE	SCALE	PROJECT	CHECKED	APPROVED
BR	12/19/16	1"=40'	RE-32	BTR	BTR
DATE: 2/2/17 REG. NO. 24219 BRENT ROSSELL					
C2					





# TABLE A MODIFIED CLASS 5 SPECIFICATIONS

	% PASSING
1"	100
3/4"	90 - 100
3/8"	50 - 80
No.4	35 - 70
No.10	20 - 60
No.40	10 - 35
No.200	5 - 10

NOTES:

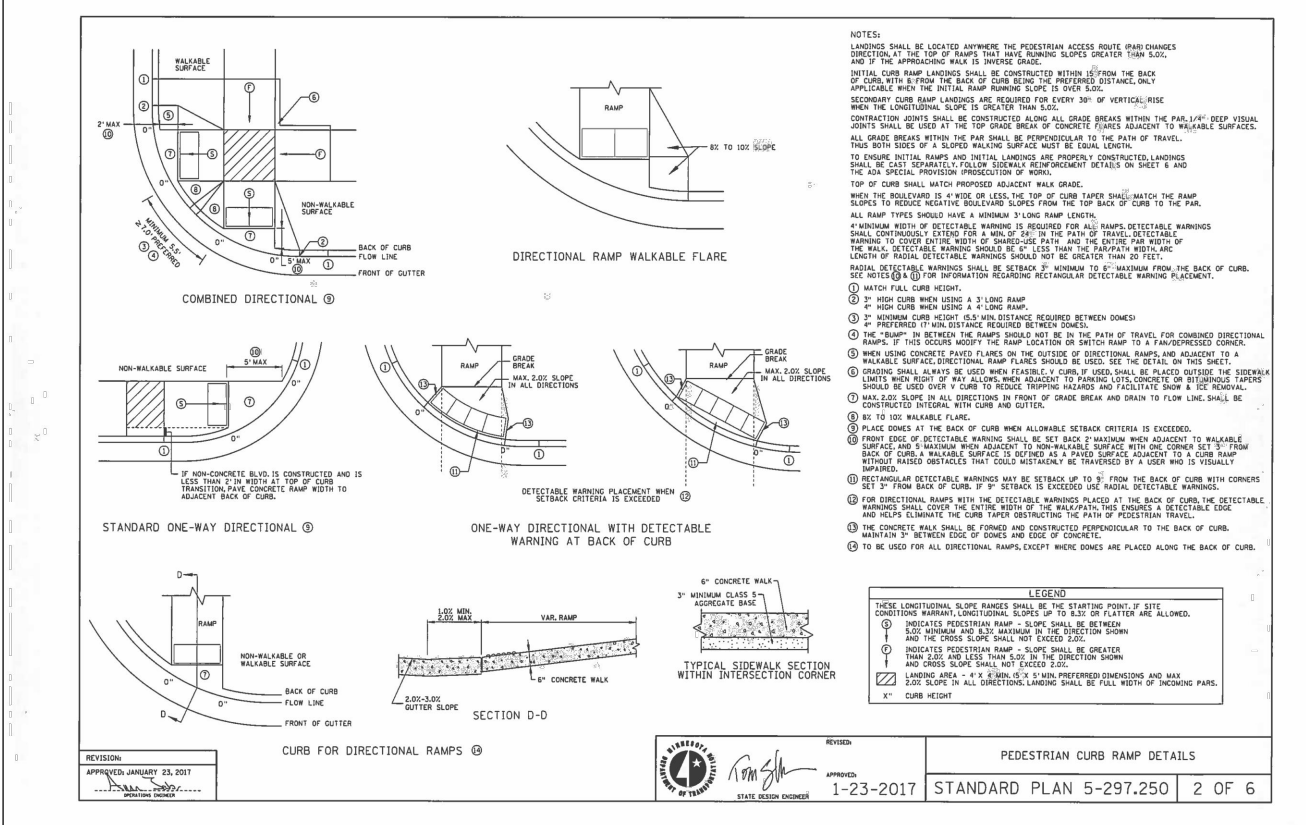
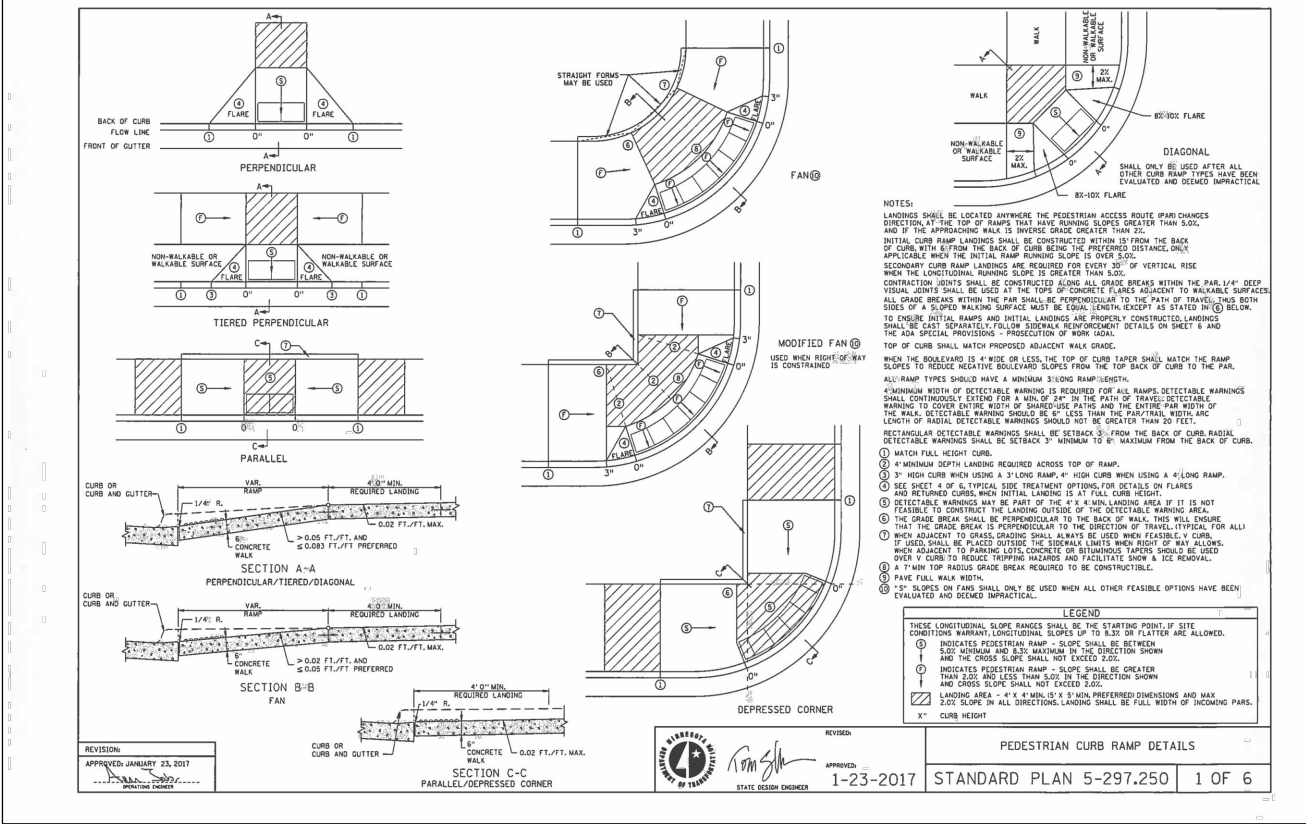
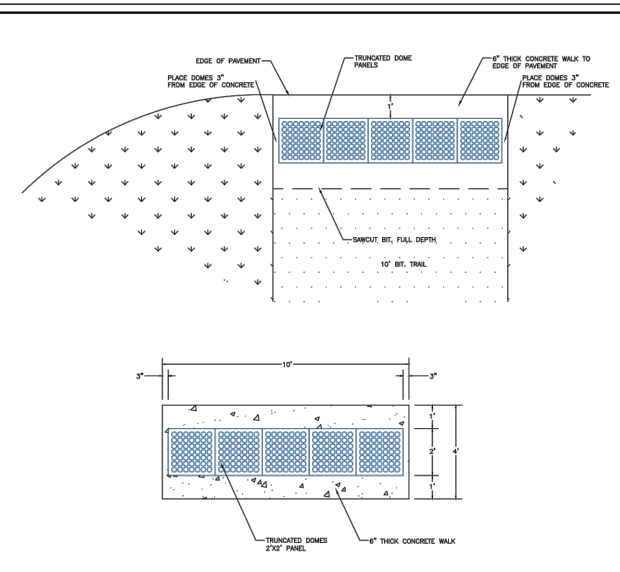
1. THE AGGREGATE BASE CONSTRUCTION WILL BE ACCEPTED FOR PAYMENT IN ACCORDANCE WITH THE PROVISIONS IN TABLE A.
2. IF THE AGGREGATE BASE FAILS TO MEET THE REQUIREMENTS OF TABLE A THE MATERIAL CAN BE CORRECTED IN PLACE OR REMOVED AND REPLACED WITH MATERIAL THAT MEET THE REQUIREMENTS OF TABLE A.
3. IN THE EVENT THAT RECYCLED MATERIAL IS USED IT MUST MEET MNDOT REQUIREMENTS FOR RECYCLED BASE.

APPROVED: 2 - 2003

City of RAMSEY

STANDARD DETAILS: MODIFIED CLASS 5 SPECIFICATIONS

CITY PLATE No. STR-26



REVISIONS

DATE

3/23/17

ADDED SHEET TO SET

BY

BR

RECORD DRAWING

ROSELL ENGINEERING, LLC

6192 267 TH CT WYOMING, MN 55092

PHONE: 763.286.0321

COVENANT MEADOWS

DETAILS

RAMSEY, MINNESOTA

DATE

2/2/17

REC. NO.

2409

DATE

12/19/16

SCALE

PROJECT

RE-12

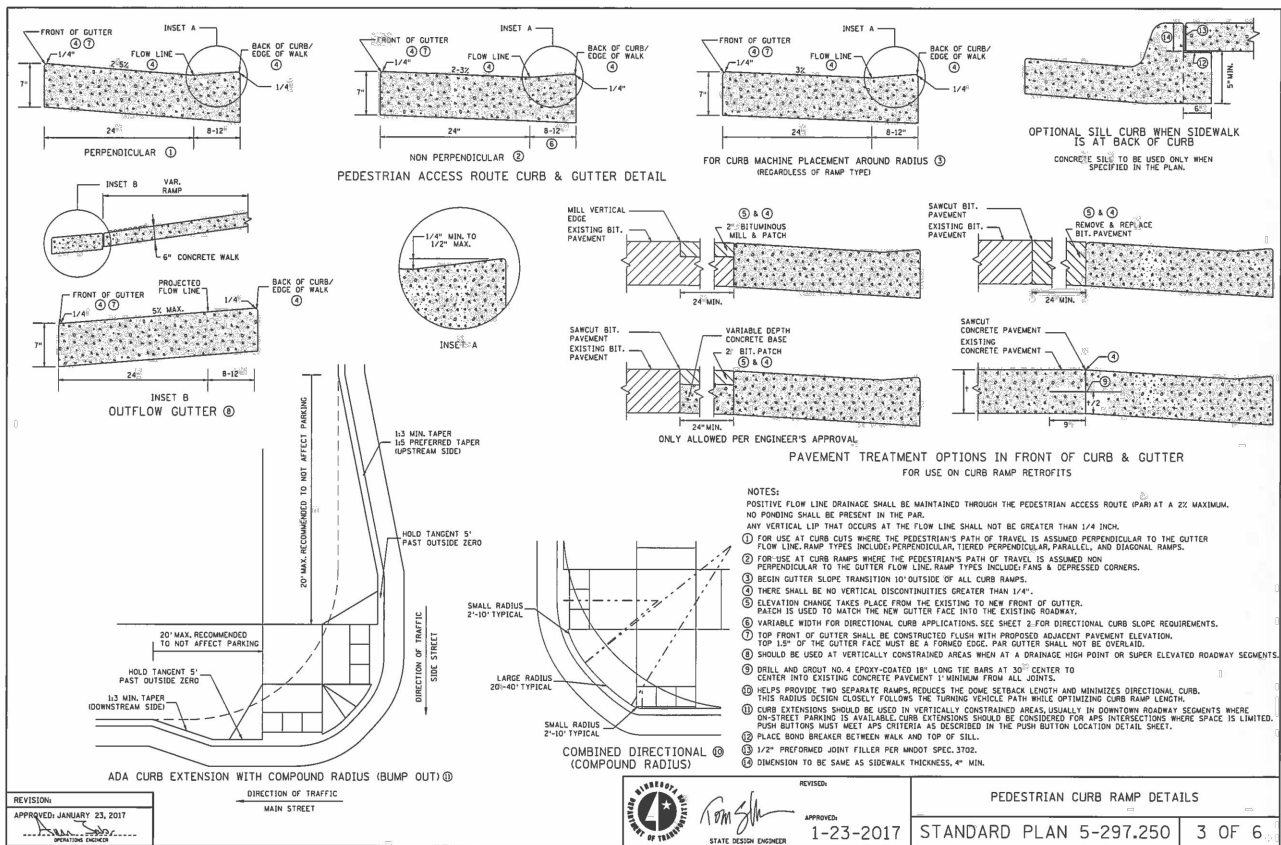
CHECKED

BY

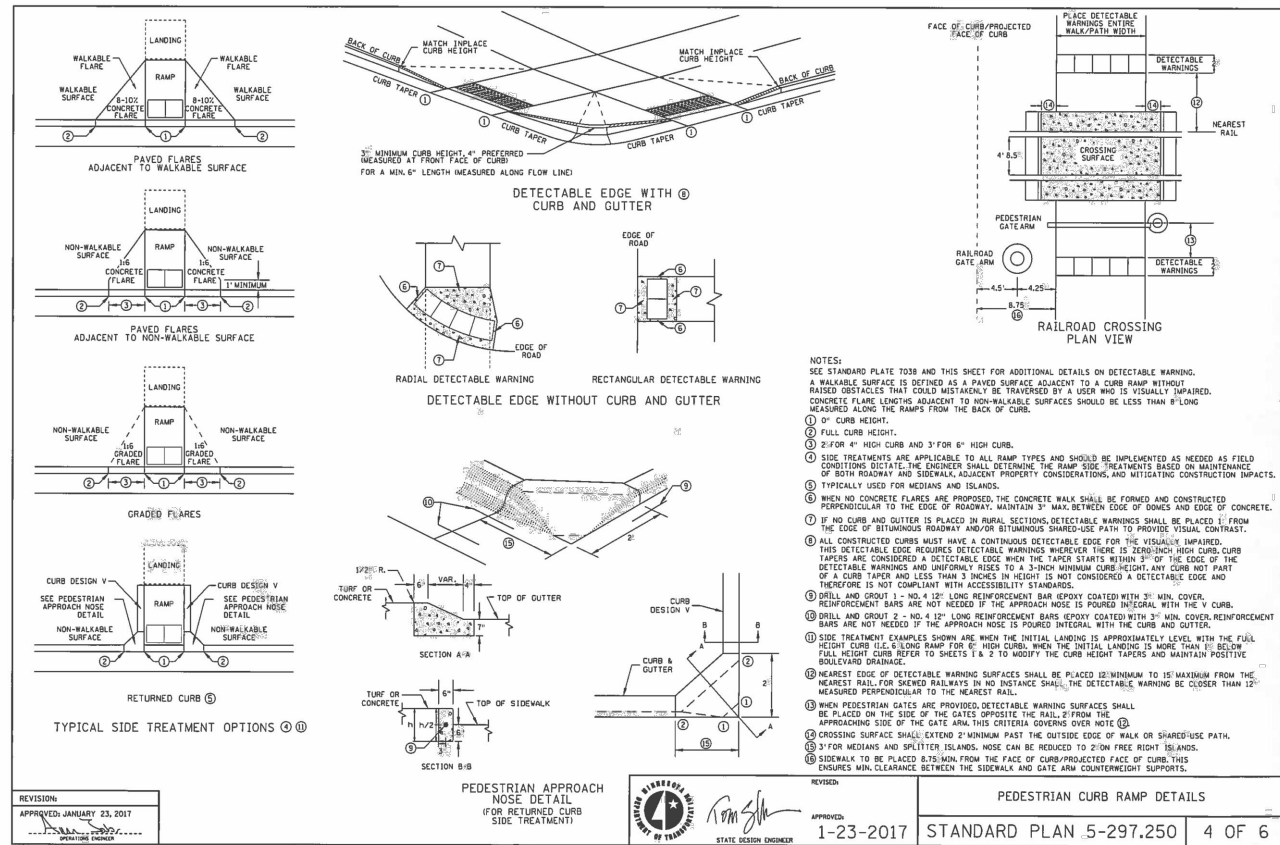
APPROVED

BY

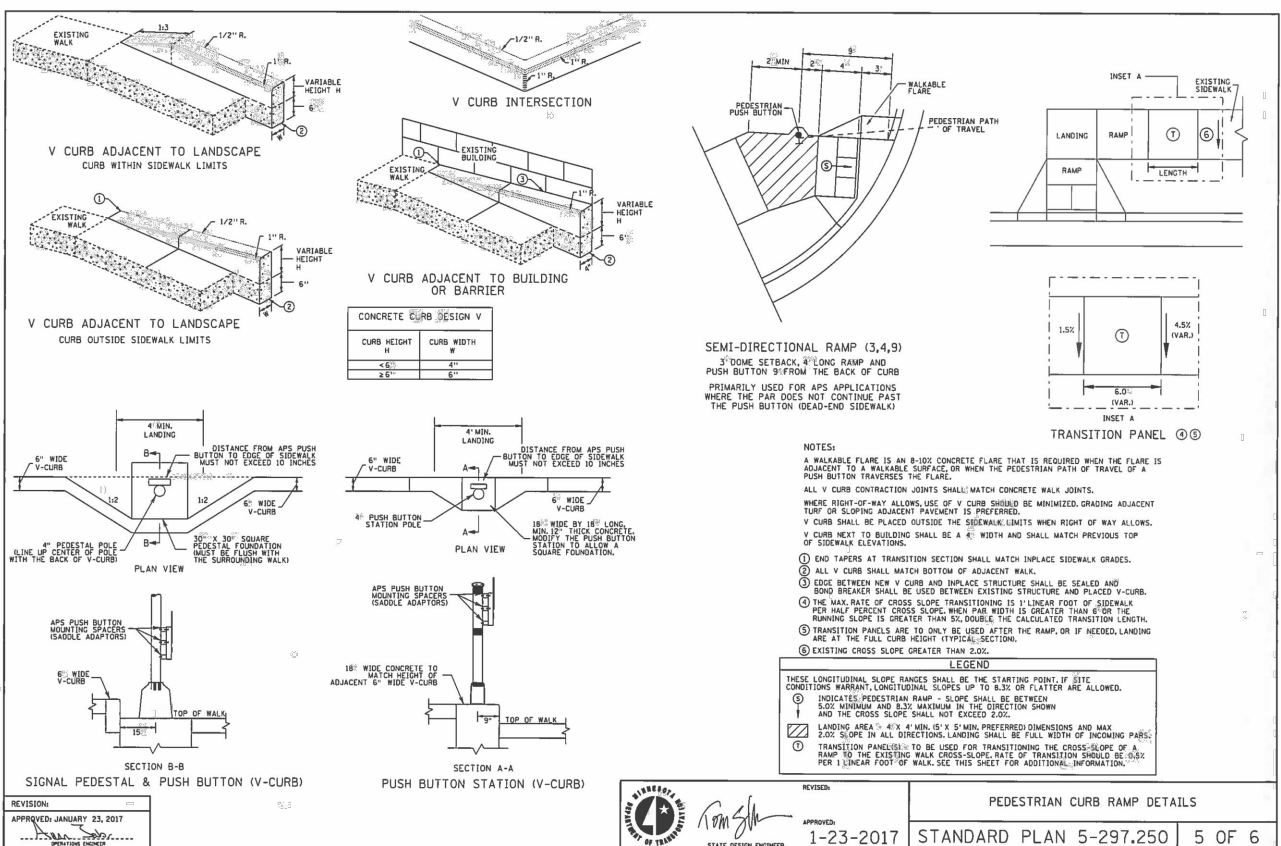
D2



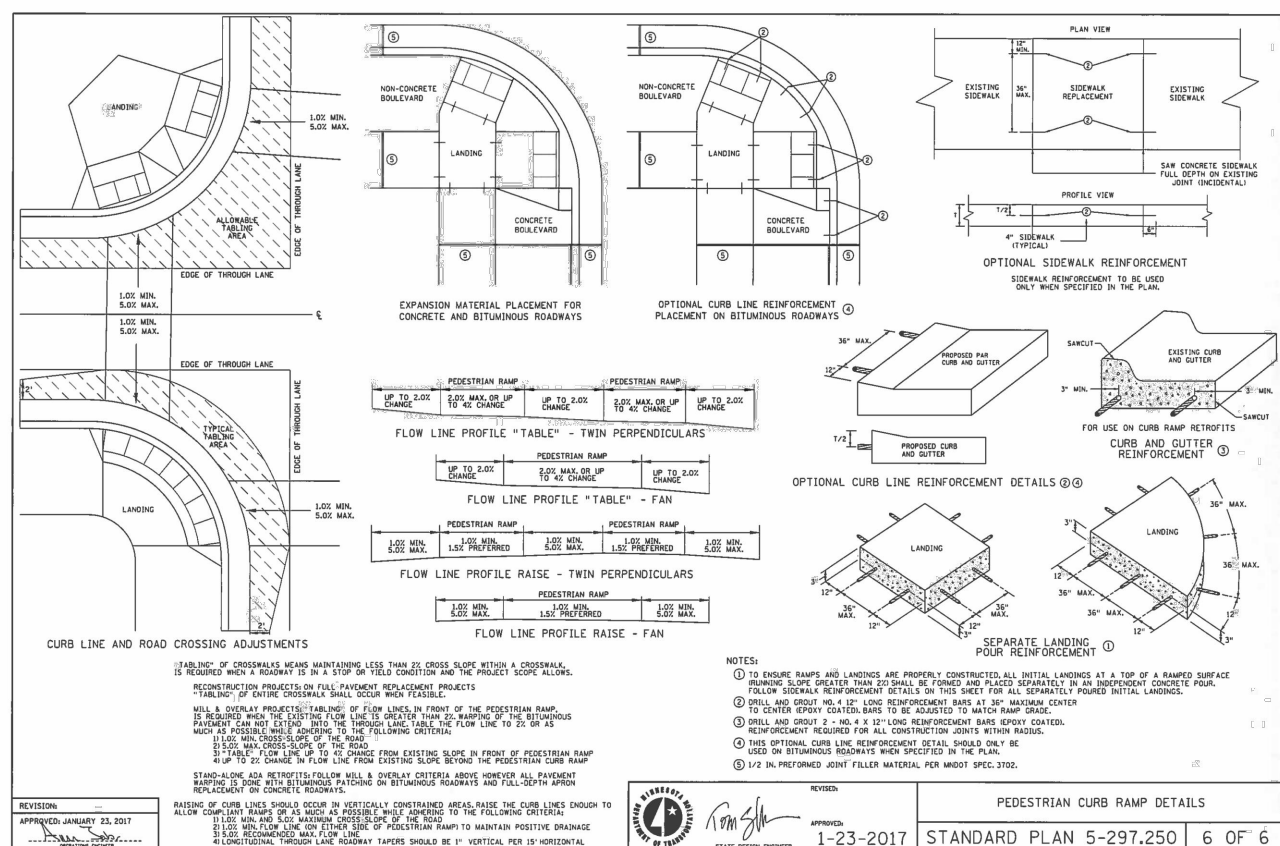
REVISION: APPROVED JANUARY 23, 2017  
 STATE DESIGN ENGINEER  
 1-23-2017  
 STANDARD PLAN 5-297.250  
 3 OF 6



REVISION: APPROVED JANUARY 23, 2017  
 STATE DESIGN ENGINEER  
 1-23-2017  
 STANDARD PLAN 5-297.250  
 4 OF 6



REVISION: APPROVED JANUARY 23, 2017  
 STATE DESIGN ENGINEER  
 1-23-2017  
 STANDARD PLAN 5-297.250  
 5 OF 6

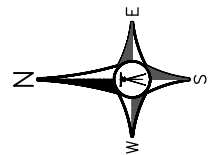


REVISION: APPROVED JANUARY 23, 2017  
 STATE DESIGN ENGINEER  
 1-23-2017  
 STANDARD PLAN 5-297.250  
 6 OF 6

BY: BR  
 REVISIONS: ADDED SHEET TO SET  
 DATE: 3/23/17  
 Roshell Engineering, LLC  
 6192 267 TH CT WYOMING, MN 55092  
 PHONE: 763.286.0521

COVENANT MEADOWS  
 DETAILS  
 RAMSEY, MINNESOTA  
 DATE: 2/2/17  
 REC. NO. 24919  
 DATE: 12/19/16  
 SCALE: 1" = 12'-0"  
 PROJECT: REC-12  
 CHECKED: BTR  
 APPROVED: BTR

D3



GRAPHIC SCALE



( IN FEET )

**LINE TYPE & SYMBOL LEGEND**

- FLARED END SECTION
- STORM SEWER
- DENOTES SOIL BORING
- |   |   |
|---|---|
| P | S |
|---|---|

 DRAIN FIELD LOC  
P = PRIMARY  
S = SECONDARY
- PROPOSED WELL LOC.
- EXIST TREE LINE
- TREE FENCE
- SILT FENCE
- PROPOSED CONTOUR
- EXIST CONTOUR
- SETBACK
- EASEMENT
- LOT LINE
- R/W
- EDGE OF BITUMINOUS CENTERLINE

TREE PROTECTION FENCE SHALL BE INSTALLED AND THE LOCATION APPROVED BY THE CITY BEFORE COMMENCEMENT OF OTHER WORK, INCLUDING SILT FENCE INSTALLATION.

AN ARBORIST SHALL BE CONSULTED TO DEVELOP A PLAN TO PROTECT EXISTING OAK TREES FROM OAK WILT.

ANY CLEARING OF OAK TREES SHALL BE PERFORMED PRIOR TO APRIL 15TH OR AFTER JULY 15TH TO MINIMIZE EXPOSURE OR INTRODUCTION OF OAK WILT.

**POND NOTES**

INFILTRATION PONDS SHALL BE EXCAVATED BY USE OF BACKHOE WITH A TOOTHED BUCKET.

NE POND AND SE POND WILL REQUIRE OVER-EXCAVATION TO REMOVE A CLAY LAYER OF 4 FEET IN THICKNESS

BOTTOM OF POND SHALL NOT BE COMPACTED

NO TOPSOIL TO BE PLACED IN PONDS

PONDS TO BE SEED WITH MnDOT SEED MIX 33-262 (44 lb/ac)

PLACE SILT FENCE (SECONDARY) IMMEDIATELY AFTER GRADING COMPLETION. THIS FENCING TO REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED IN THE PONDS.

ACCESS TO PONDS VIA EASEMENTS ABUTTING PUBLIC ROADS

NE POND AND SE POND SHALL BE EXCAVATED DOWN TO THE EXISTING SAND LAYER. ON SITE SANDS TO BE PLACED IN LOOSE LIFTS OF 12 INCHES TO BRING POND BOTTOM UP TO GRADE. NO COMPACTION OF SOILS SHALL OCCUR.

NOTE: STREETS TO BE SWEEP DAILY OR AS DIRECTED BY THE CITY ENGINEER.

NOTE: NO ACTIVITY, OTHER THAN THE CONSTRUCTION OF, SHALL BE ALLOWED IN INFILTRATION POND AREAS.

NOTE: TREES TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITY BY MEANS OF FENCING OR OTHER APPROVED METHOD. TREE FENCING TO BE PLACED BY HAND AND PRIOR TO SILT FENCE PLACEMENT.

NOTE: BUILDING PADS & DRAINFIELD SITE FOR GRAPHICAL PURPOSES ONLY. ACTUAL LOCATION MAY VARY.

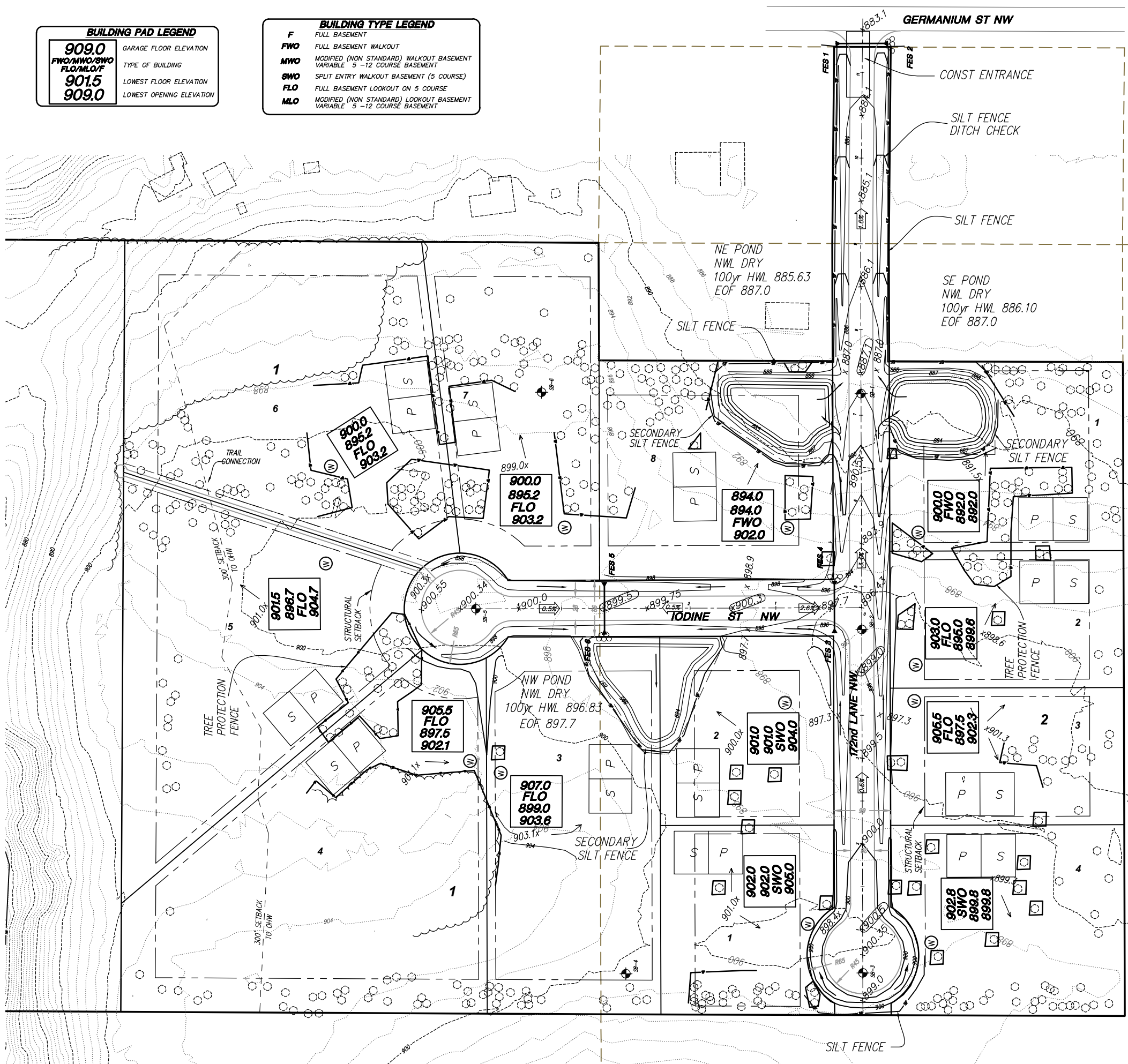
NOTE: DRAINFIELD LOCATIONS, WHEN DETERMINED, ARE TO BE PROTECTED FROM CONSTRUCTION ACTIVITIES.

**BUILDING PAD LEGEND**

909.0	GARAGE FLOOR ELEVATION
FWO/MWO/SWO	TYPE OF BUILDING
901.5	LOWEST FLOOR ELEVATION
909.0	LOWEST OPENING ELEVATION

**BUILDING TYPE LEGEND**

F	FULL BASEMENT
FWO	FULL BASEMENT WALKOUT
MWO	MODIFIED (NON STANDARD) WALKOUT BASEMENT VARIABLE 5-12 COURSE BASEMENT
SWO	SPLIT ENTRY WALKOUT BASEMENT (5 COURSE)
FLO	FULL BASEMENT LOOKOUT ON 5 COURSE
MLO	MODIFIED (NON STANDARD) LOOKOUT BASEMENT VARIABLE 5-12 COURSE BASEMENT



DATE	REVISIONS	BY
3/23/17	DOUBLE 100 YR PONDS, TREE FENCE	BR
5/4/17	100 YR PONDS, BEERING	BR

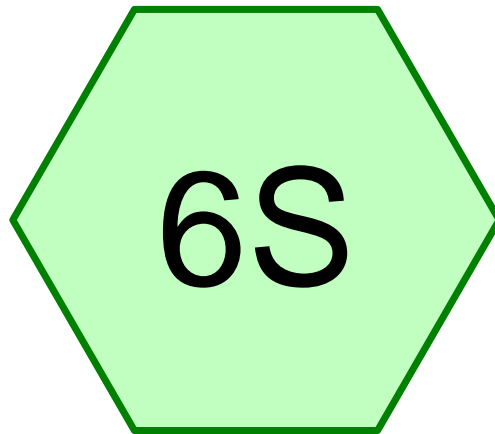
**ROSELL ENGINEERING, LLC**  
6192 267 TH CT WYOMING, MN 55092  
PHONE: 763.286.0521

**COVENANT MEADOWS**  
PRELIMINARY GRADING PLAN  
RAMSEY, MINNESOTA

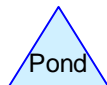
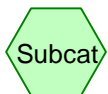
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
DATE: 2/2/17 REG. NO. 24212  
*Brent Roszell*  
BRENT ROSZELL

DATE	12/19/16
SCALE	AS SHOWN
PROJECT	RE-32
CHECKED	BTR
APPROVED	BTR

**G1**



EXIST



Routing Diagram for COVENANT MEADOWS ex  
Prepared by ROSHELL ENGINEERING, Printed 3/22/2017  
HydroCAD® 10.00-15 s/n 01744 © 2015 HydroCAD Software Solutions LLC

**COVENANT MEADOWS ex**

Prepared by ROSHELL ENGINEERING

HydroCAD® 10.00-15 s/n 01744 © 2015 HydroCAD Software Solutions LLC

Printed 3/22/2017

Page 2

**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
11.330	39	Pasture/grassland/range, Good, HSG A (6S)
<b>11.330</b>	<b>39</b>	<b>TOTAL AREA</b>

**COVENANT MEADOWS ex**

Prepared by ROSHELL ENGINEERING

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Page 3

**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
11.330	HSG A	6S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
<b>11.330</b>		<b>TOTAL AREA</b>

**COVENANT MEADOWS ex**

Prepared by ROSHELL ENGINEERING

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Page 4

**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
11.330	0.000	0.000	0.000	0.000	11.330	Pasture/grassland/range, Good	6S
<b>11.330</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>11.330</b>	<b>TOTAL AREA</b>	

**COVENANT MEADOWS ex**

Type II 24-hr 1" EVENT Rainfall=1.00"

Prepared by ROSHELL ENGINEERING

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Page 5

Time span=5.00-72.00 hrs, dt=0.01 hrs, 6701 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 6S: EXIST**

Runoff Area=11.330 ac 0.00% Impervious Runoff Depth=0.00"  
Flow Length=300' Slope=0.0100 1' Tc=48.5 min CN=39 Runoff=0.00 cfs 0.000 af

**Total Runoff Area = 11.330 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"**  
**100.00% Pervious = 11.330 ac 0.00% Impervious = 0.000 ac**

**Summary for Subcatchment 6S: EXIST**

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

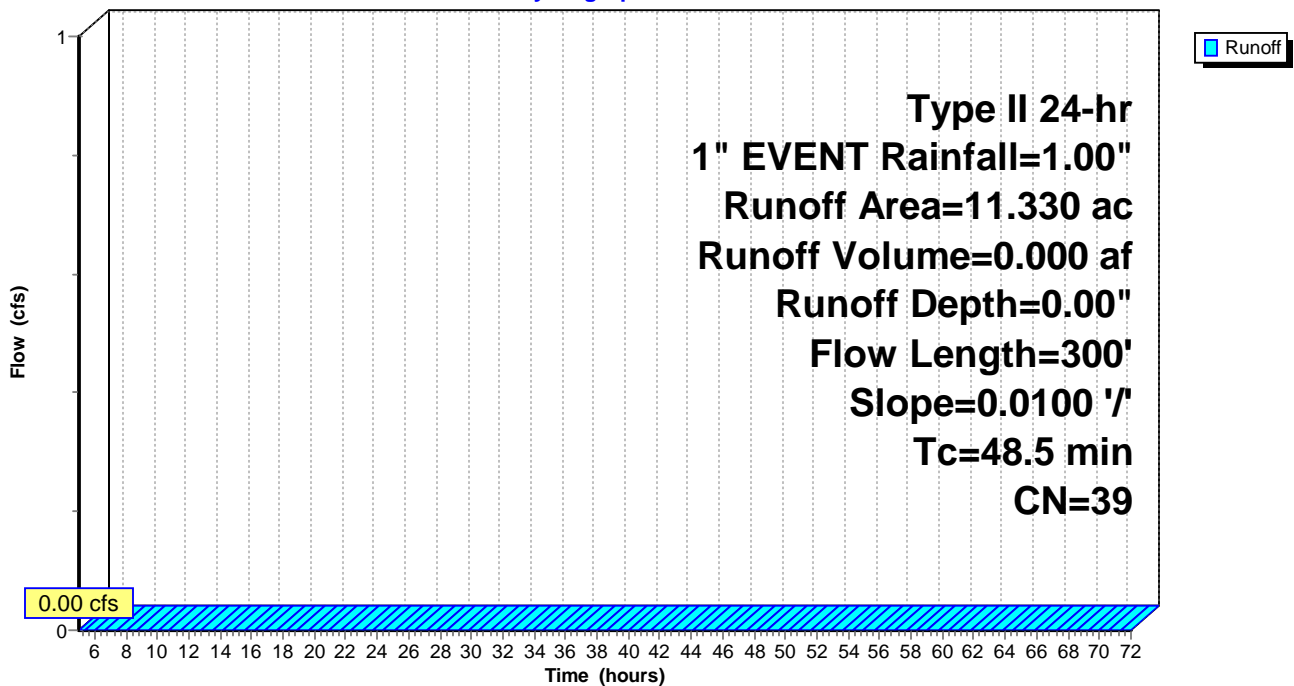
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 1" EVENT Rainfall=1.00"

Area (ac)	CN	Description
11.330	39	Pasture/grassland/range, Good, HSG A
11.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
48.5	300	0.0100	0.10		<b>Sheet Flow, SHEET</b> Grass: Dense n= 0.240 P2= 2.80"

**Subcatchment 6S: EXIST**

Hydrograph



**COVENANT MEADOWS ex**

Prepared by ROSHELL ENGINEERING

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Type II 24-hr 2 YEAR Rainfall=2.86"

Printed 3/22/2017

Page 7

Time span=5.00-72.00 hrs, dt=0.01 hrs, 6701 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 6S: EXIST**

Runoff Area=11.330 ac 0.00% Impervious Runoff Depth=0.00"  
Flow Length=300' Slope=0.0100 '/' Tc=48.5 min CN=39 Runoff=0.00 cfs 0.000 af

**Total Runoff Area = 11.330 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"**  
**100.00% Pervious = 11.330 ac 0.00% Impervious = 0.000 ac**

**Summary for Subcatchment 6S: EXIST**

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

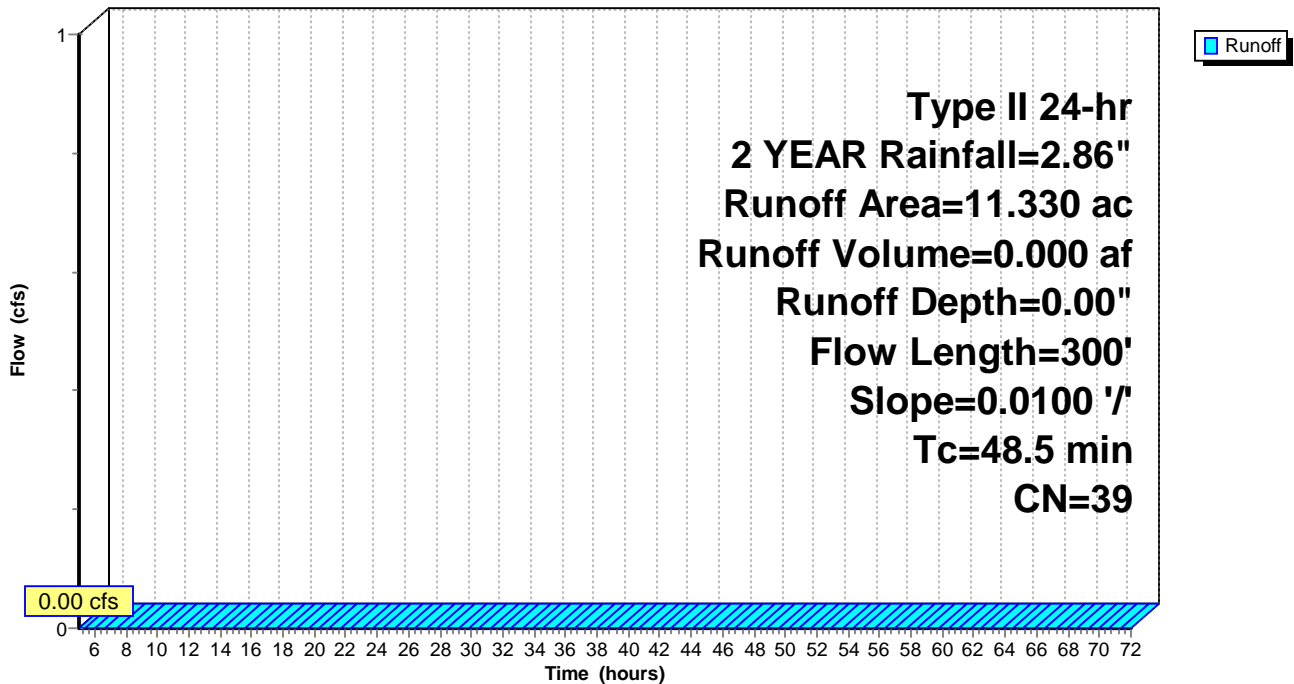
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 2 YEAR Rainfall=2.86"

Area (ac)	CN	Description
11.330	39	Pasture/grassland/range, Good, HSG A
11.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
48.5	300	0.0100	0.10		<b>Sheet Flow, SHEET</b> Grass: Dense n= 0.240 P2= 2.80"

**Subcatchment 6S: EXIST**

Hydrograph



**COVENANT MEADOWS ex**

Prepared by ROSHELL ENGINEERING

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Type II 24-hr 10 YEAR Rainfall=4.25"

Printed 3/22/2017

Page 9

Time span=5.00-72.00 hrs, dt=0.01 hrs, 6701 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 6S: EXIST**

Runoff Area=11.330 ac 0.00% Impervious Runoff Depth=0.08"  
Flow Length=300' Slope=0.0100 '/' Tc=48.5 min CN=39 Runoff=0.09 cfs 0.071 af

**Total Runoff Area = 11.330 ac Runoff Volume = 0.071 af Average Runoff Depth = 0.08"**  
**100.00% Pervious = 11.330 ac 0.00% Impervious = 0.000 ac**

**Summary for Subcatchment 6S: EXIST**

Runoff = 0.09 cfs @ 15.79 hrs, Volume= 0.071 af, Depth= 0.08"

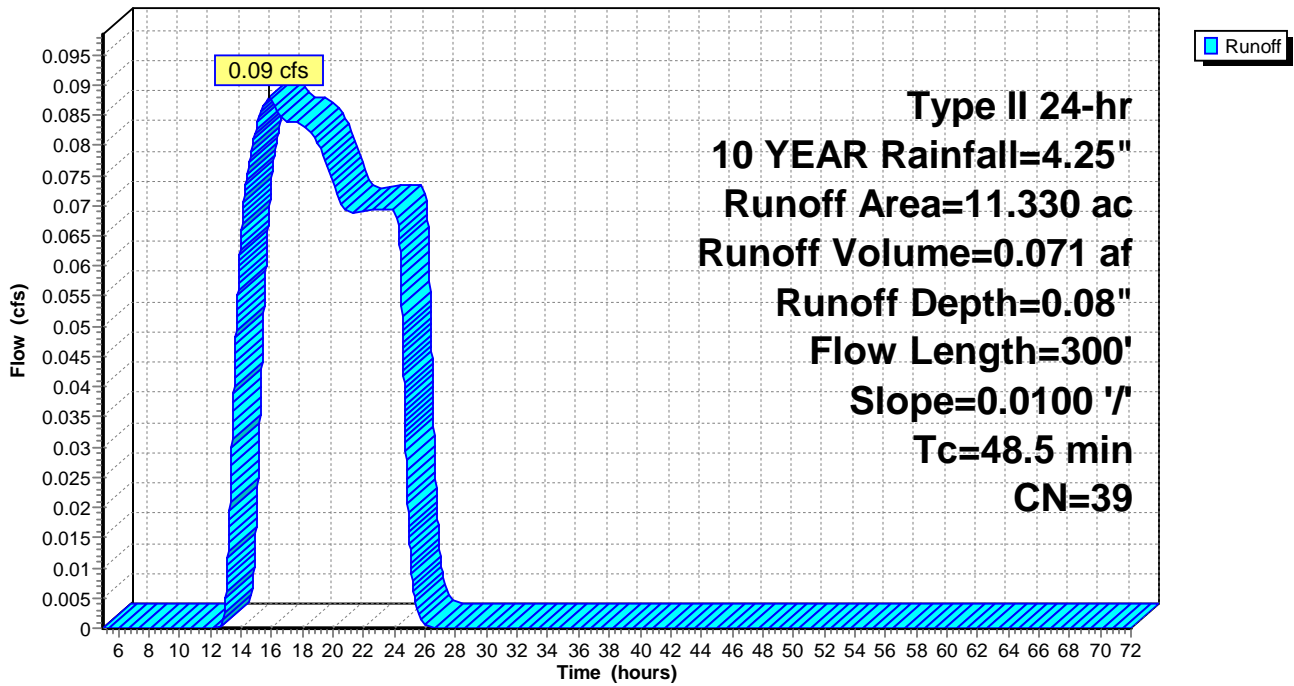
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 10 YEAR Rainfall=4.25"

Area (ac)	CN	Description
11.330	39	Pasture/grassland/range, Good, HSG A
11.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
48.5	300	0.0100	0.10		<b>Sheet Flow, SHEET</b> Grass: Dense n= 0.240 P2= 2.80"

**Subcatchment 6S: EXIST**

Hydrograph



**COVENANT MEADOWS ex**

Type II 24-hr 100 YEAR Rainfall=7.06"

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Printed 3/22/2017

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Time span=5.00-72.00 hrs, dt=0.01 hrs, 6701 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 6S: EXIST**

Runoff Area=11.330 ac 0.00% Impervious Runoff Depth=0.79"  
Flow Length=300' Slope=0.0100 '/' Tc=48.5 min CN=39 Runoff=3.08 cfs 0.746 af

**Total Runoff Area = 11.330 ac Runoff Volume = 0.746 af Average Runoff Depth = 0.79"**  
**100.00% Pervious = 11.330 ac 0.00% Impervious = 0.000 ac**

**Summary for Subcatchment 6S: EXIST**

Runoff = 3.08 cfs @ 12.66 hrs, Volume= 0.746 af, Depth= 0.79"

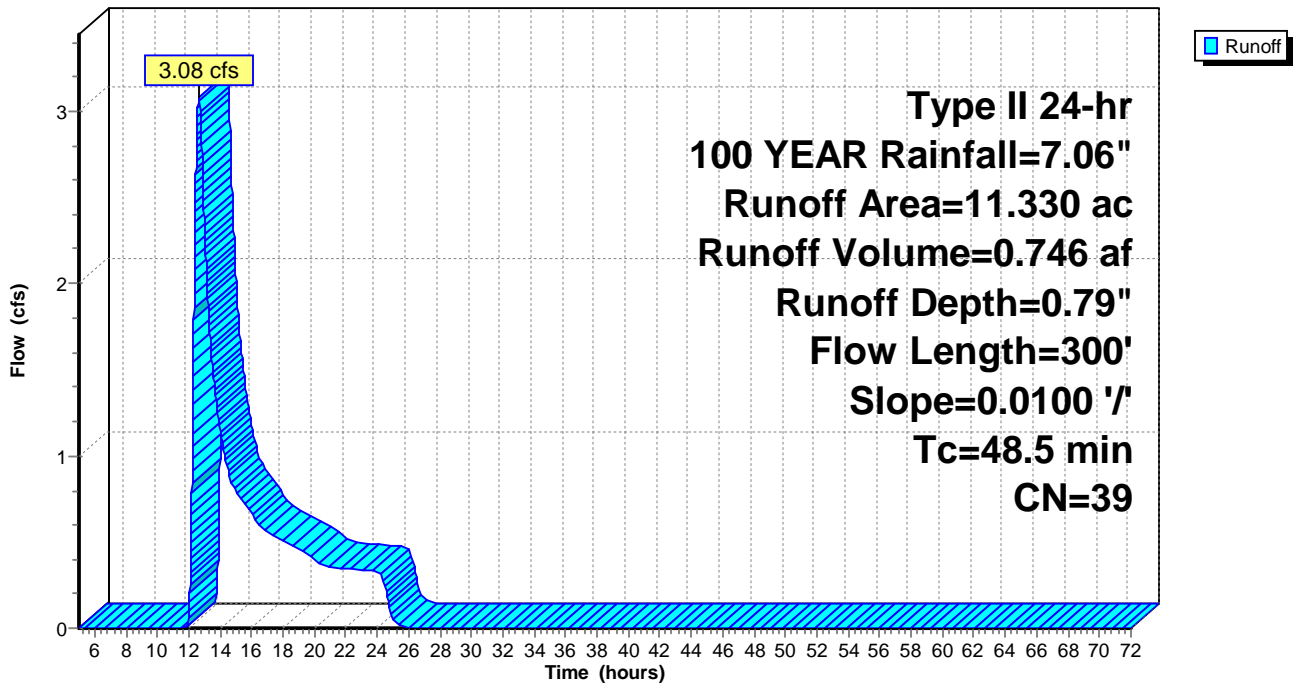
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-72.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 100 YEAR Rainfall=7.06"

Area (ac)	CN	Description
11.330	39	Pasture/grassland/range, Good, HSG A
11.330		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
48.5	300	0.0100	0.10		<b>Sheet Flow, SHEET</b> Grass: Dense n= 0.240 P2= 2.80"

**Subcatchment 6S: EXIST**

Hydrograph





DIRECT



PROPOSED



NW POND



PROPOSED



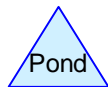
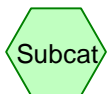
NE POND



SE AREA



SE POND



**Routing Diagram for COVENANT MEADOWS A**  
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# COVENANT MEADOWS A

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## Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.230	51	1 acre lots, 20% imp, HSG A (NE, NW)
2.530	57	1/3 acre lots, 30% imp, HSG A (SE)
0.275	98	Paved parking, HSG A (5S)
<b>11.035</b>	<b>54</b>	<b>TOTAL AREA</b>

# COVENANT MEADOWS A

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## Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
11.035	HSG A	5S, NE, NW, SE
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
<b>11.035</b>		<b>TOTAL AREA</b>

**COVENANT MEADOWS A**

**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
8.230	0.000	0.000	0.000	0.000	8.230	1 acre lots, 20% imp	NE, NW
2.530	0.000	0.000	0.000	0.000	2.530	1/3 acre lots, 30% imp	SE
0.275	0.000	0.000	0.000	0.000	0.275	Paved parking	5S
<b>11.035</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>11.035</b>	<b>TOTAL AREA</b>	

**COVENANT MEADOWS A**

Type II 24-hr 2 YEAR Rainfall=2.86"

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Time span=5.00-120.00 hrs, dt=0.01 hrs, 11501 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 5S: DIRECT** Runoff Area=12,000 sf 100.00% Impervious Runoff Depth>2.58"  
Flow Length=400' Slope=0.0050 '/' Tc=6.3 min CN=98 Runoff=1.10 cfs 0.059 af

**Subcatchment NE: PROPOSED** Runoff Area=2.400 ac 20.00% Impervious Runoff Depth=0.08"  
Flow Length=200' Slope=0.0500 '/' Tc=12.6 min CN=51 Runoff=0.02 cfs 0.017 af

**Subcatchment NW: PROPOSED** Runoff Area=5.830 ac 20.00% Impervious Runoff Depth=0.08"  
Flow Length=400' Tc=22.8 min CN=51 Runoff=0.06 cfs 0.041 af

**Subcatchment SE: SE AREA** Runoff Area=2.530 ac 30.00% Impervious Runoff Depth=0.21"  
Flow Length=200' Slope=0.0500 '/' Tc=12.6 min CN=57 Runoff=0.26 cfs 0.043 af

**Pond 1P: NE POND** Peak Elev=884.01' Storage=37 cf Inflow=0.02 cfs 0.017 af  
Outflow=0.02 cfs 0.017 af

**Pond 2P: SE POND** Peak Elev=884.03' Storage=184 cf Inflow=0.26 cfs 0.043 af  
Outflow=0.11 cfs 0.043 af

**Pond 3P: NW POND** Peak Elev=894.01' Storage=89 cf Inflow=0.06 cfs 0.041 af  
Outflow=0.06 cfs 0.041 af

**Total Runoff Area = 11.035 ac Runoff Volume = 0.160 af Average Runoff Depth = 0.17"**  
**75.71% Pervious = 8.355 ac 24.29% Impervious = 2.680 ac**

**COVENANT MEADOWS A**

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Type II 24-hr 2 YEAR Rainfall=2.86"

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**Summary for Subcatchment 5S: DIRECT**

Runoff = 1.10 cfs @ 11.97 hrs, Volume= 0.059 af, Depth> 2.58"

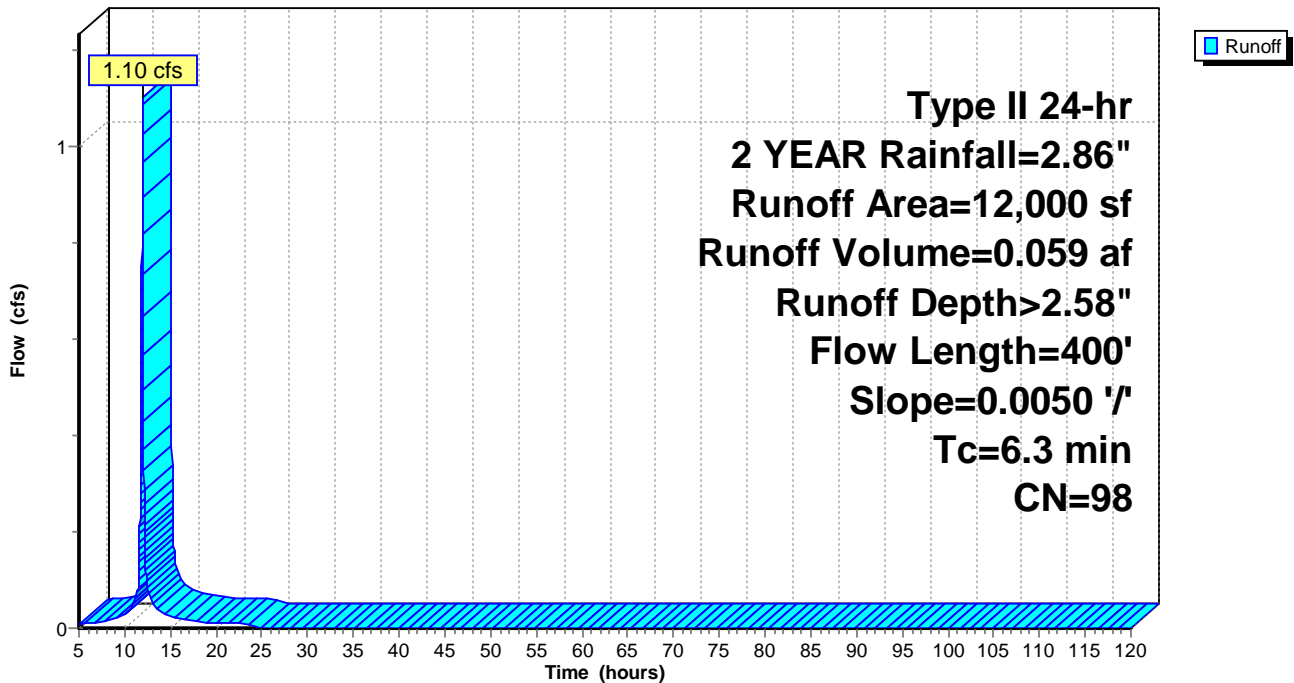
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2 YEAR Rainfall=2.86"

Area (sf)	CN	Description
12,000	98	Paved parking, HSG A
12,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	400	0.0050	1.06		<b>Shallow Concentrated Flow, DITCH GRASSED</b> Grassed Waterway Kv= 15.0 fps

**Subcatchment 5S: DIRECT**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 2 YEAR Rainfall=2.86"

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**Summary for Subcatchment NE: PROPOSED**

Runoff = 0.02 cfs @ 13.03 hrs, Volume= 0.017 af, Depth= 0.08"

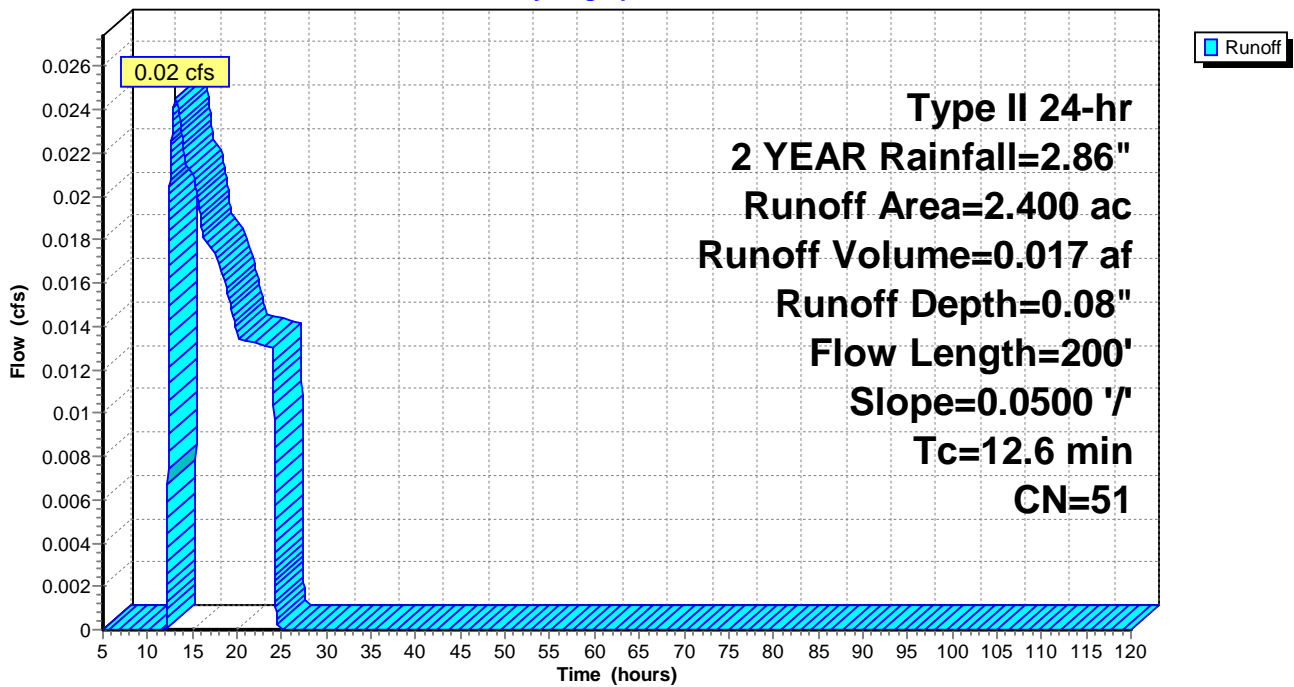
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2 YEAR Rainfall=2.86"

Area (ac)	CN	Description
2.400	51	1 acre lots, 20% imp, HSG A
1.920		80.00% Pervious Area
0.480		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	200	0.0500	0.26		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.80"

**Subcatchment NE: PROPOSED**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 2 YEAR Rainfall=2.86"

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**Summary for Subcatchment NW: PROPOSED**

Runoff = 0.06 cfs @ 13.40 hrs, Volume= 0.041 af, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2 YEAR Rainfall=2.86"

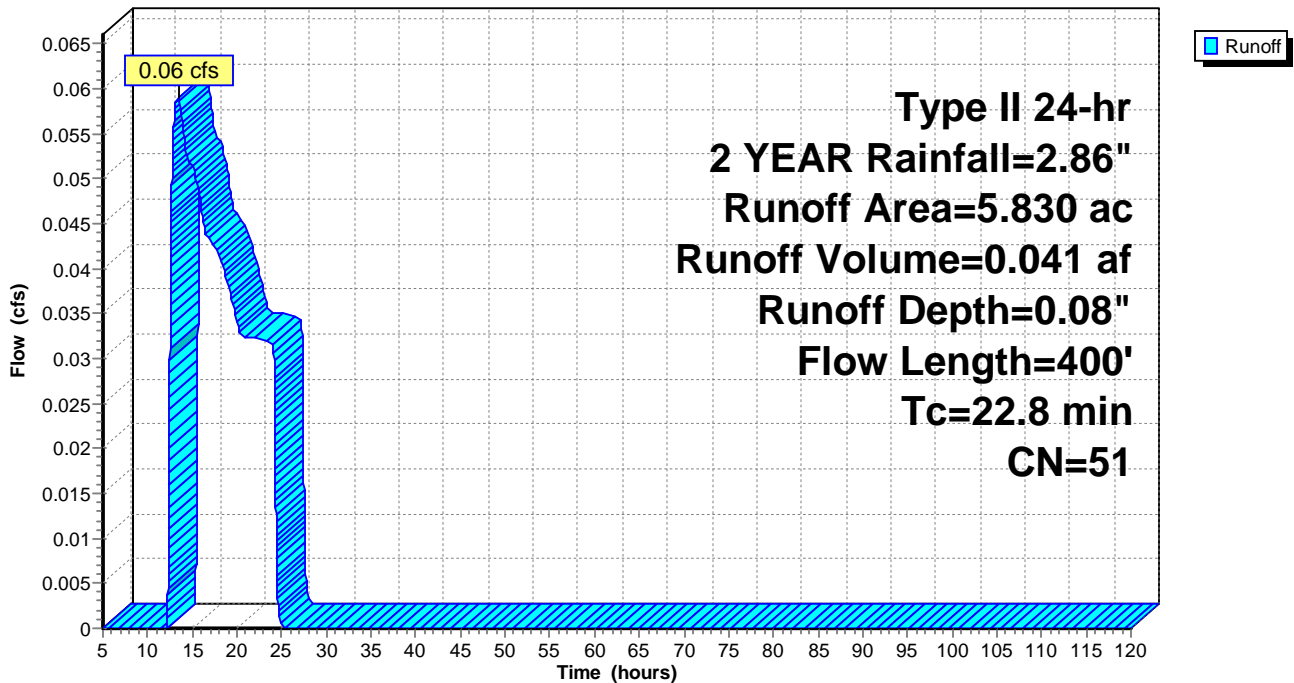
Area (ac)	CN	Description
5.830	51	1 acre lots, 20% imp, HSG A
4.664		80.00% Pervious Area
1.166		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	200	0.0150	0.16		<b>Sheet Flow, Sheet Flow</b> Grass: Short n= 0.150 P2= 2.80"
2.3	200	0.0050	1.44		<b>Shallow Concentrated Flow, CONCENTRATED</b> Paved Kv= 20.3 fps
22.8	400	Total			

**Subcatchment NW: PROPOSED**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 2 YEAR Rainfall=2.86"

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**Summary for Subcatchment SE: SE AREA**

Runoff = 0.26 cfs @ 12.11 hrs, Volume= 0.043 af, Depth= 0.21"

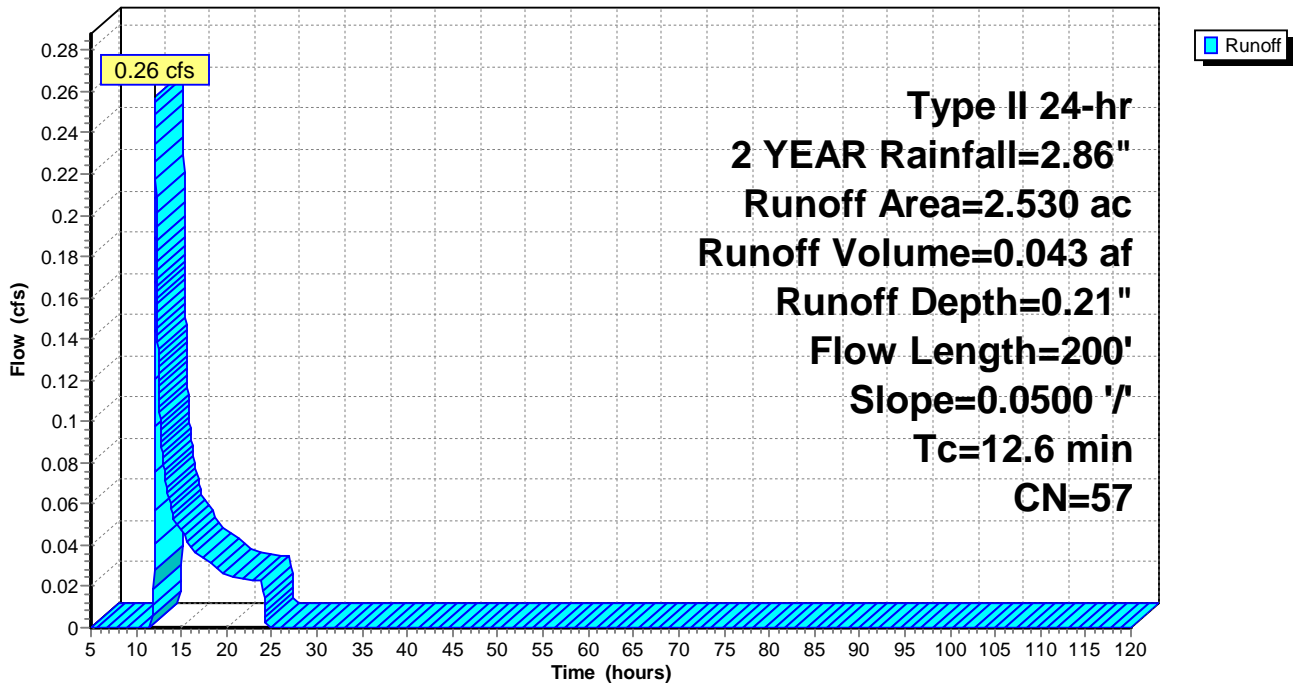
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 2 YEAR Rainfall=2.86"

Area (ac)	CN	Description
2.530	57	1/3 acre lots, 30% imp, HSG A
1.771		70.00% Pervious Area
0.759		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	200	0.0500	0.26		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.80"

**Subcatchment SE: SE AREA**

Hydrograph



**COVENANT MEADOWS A**

Type II 24-hr 2 YEAR Rainfall=2.86"

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**Summary for Pond 1P: NE POND**

Inflow Area = 2.400 ac, 20.00% Impervious, Inflow Depth = 0.08" for 2 YEAR event  
 Inflow = 0.02 cfs @ 13.03 hrs, Volume= 0.017 af  
 Outflow = 0.02 cfs @ 13.86 hrs, Volume= 0.017 af, Atten= 7%, Lag= 49.7 min  
 Discarded = 0.02 cfs @ 13.86 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 884.01' @ 13.86 hrs Surf.Area= 5,127 sf Storage= 37 cf

Plug-Flow detention time= 26.9 min calculated for 0.017 af (100% of inflow)  
 Center-of-Mass det. time= 26.9 min ( 1,079.3 - 1,052.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	21,286 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	5,118	0	0
885.00	6,374	5,746	5,746
886.00	7,720	7,047	12,793
887.00	9,265	8,493	21,286

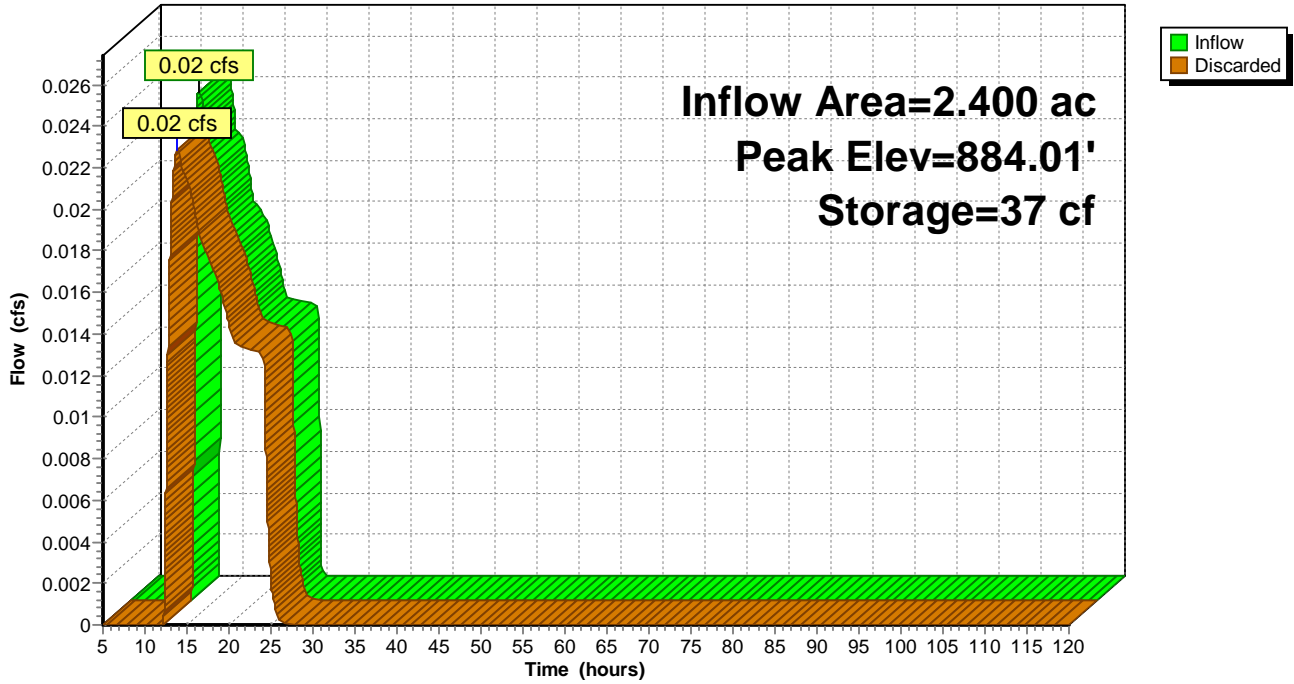
Device	Routing	Invert	Outlet Devices
#1	Discarded	884.00'	<b>0.800 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.09 cfs @ 13.86 hrs HW=884.01' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.09 cfs)

Pond 1P: NE POND

Hydrograph



**COVENANT MEADOWS A**

Type II 24-hr 2 YEAR Rainfall=2.86"

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**Summary for Pond 2P: SE POND**

Inflow Area = 2.530 ac, 30.00% Impervious, Inflow Depth = 0.21" for 2 YEAR event  
 Inflow = 0.26 cfs @ 12.11 hrs, Volume= 0.043 af  
 Outflow = 0.11 cfs @ 12.59 hrs, Volume= 0.043 af, Atten= 58%, Lag= 28.5 min  
 Discarded = 0.11 cfs @ 12.59 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 884.03' @ 12.59 hrs Surf.Area= 5,853 sf Storage= 184 cf

Plug-Flow detention time= 27.0 min calculated for 0.043 af (100% of inflow)  
 Center-of-Mass det. time= 27.0 min ( 996.9 - 969.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	23,064 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	5,815	0	0
885.00	7,008	6,412	6,412
886.00	8,301	7,655	14,066
887.00	9,695	8,998	23,064

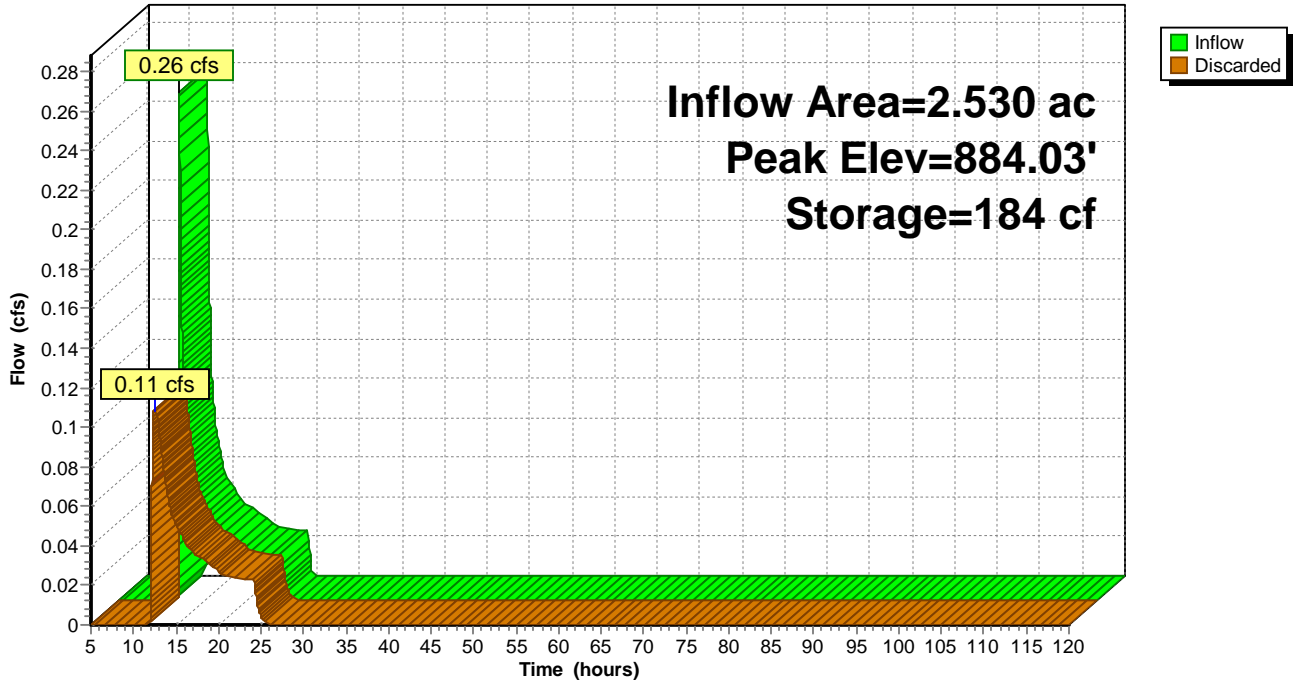
Device	Routing	Invert	Outlet Devices
#1	Discarded	884.00'	<b>0.800 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.11 cfs @ 12.59 hrs HW=884.03' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.11 cfs)

Pond 2P: SE POND

Hydrograph



**COVENANT MEADOWS A**

Type II 24-hr 2 YEAR Rainfall=2.86"

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**Summary for Pond 3P: NW POND**

Inflow Area = 5.830 ac, 20.00% Impervious, Inflow Depth = 0.08" for 2 YEAR event  
 Inflow = 0.06 cfs @ 13.40 hrs, Volume= 0.041 af  
 Outflow = 0.06 cfs @ 14.03 hrs, Volume= 0.041 af, Atten= 6%, Lag= 37.7 min  
 Discarded = 0.06 cfs @ 14.03 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 894.01' @ 14.03 hrs Surf.Area= 7,869 sf Storage= 89 cf

Plug-Flow detention time= 26.9 min calculated for 0.041 af (100% of inflow)  
 Center-of-Mass det. time= 26.9 min ( 1,088.8 - 1,061.9 )

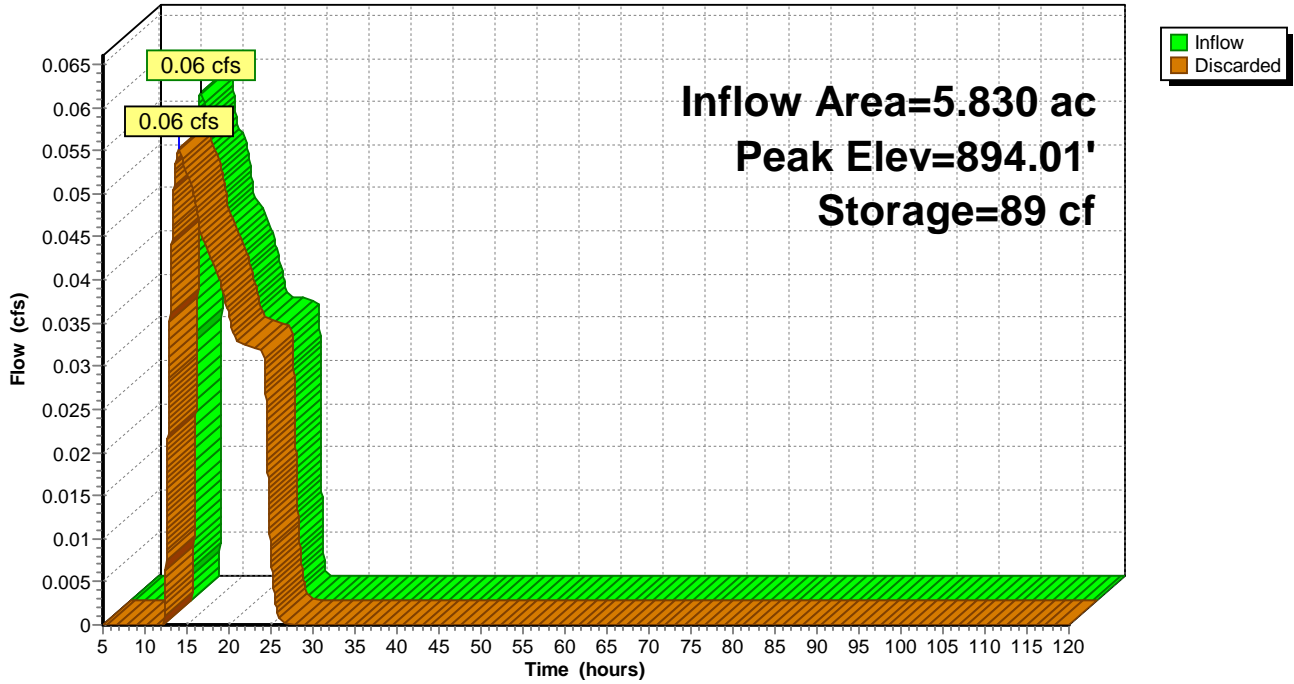
Volume	Invert	Avail.Storage	Storage Description
#1	894.00'	30,265 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
894.00	7,853	0	0
895.00	9,287	8,570	8,570
897.00	12,408	21,695	30,265

Device	Routing	Invert	Outlet Devices
#1	Discarded	894.00'	<b>0.800 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.15 cfs @ 14.03 hrs HW=894.01' (Free Discharge)  
 ↑**1=Exfiltration** (Exfiltration Controls 0.15 cfs)

Pond 3P: NW POND

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 10 YEAR Rainfall=4.25"

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Time span=5.00-120.00 hrs, dt=0.01 hrs, 11501 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 5S: DIRECT** Runoff Area=12,000 sf 100.00% Impervious Runoff Depth>3.90"  
Flow Length=400' Slope=0.0050 '/' Tc=6.3 min CN=98 Runoff=1.65 cfs 0.090 af

**Subcatchment NE: PROPOSED** Runoff Area=2.400 ac 20.00% Impervious Runoff Depth=0.45"  
Flow Length=200' Slope=0.0500 '/' Tc=12.6 min CN=51 Runoff=0.88 cfs 0.091 af

**Subcatchment NW: PROPOSED** Runoff Area=5.830 ac 20.00% Impervious Runoff Depth=0.45"  
Flow Length=400' Tc=22.8 min CN=51 Runoff=1.44 cfs 0.221 af

**Subcatchment SE: SE AREA** Runoff Area=2.530 ac 30.00% Impervious Runoff Depth=0.73"  
Flow Length=200' Slope=0.0500 '/' Tc=12.6 min CN=57 Runoff=2.09 cfs 0.154 af

**Pond 1P: NE POND** Peak Elev=884.21' Storage=1,125 cf Inflow=0.88 cfs 0.091 af  
Outflow=0.10 cfs 0.091 af

**Pond 2P: SE POND** Peak Elev=884.48' Storage=2,898 cf Inflow=2.09 cfs 0.154 af  
Outflow=0.12 cfs 0.154 af

**Pond 3P: NW POND** Peak Elev=894.46' Storage=3,745 cf Inflow=1.44 cfs 0.221 af  
Outflow=0.16 cfs 0.221 af

**Total Runoff Area = 11.035 ac Runoff Volume = 0.555 af Average Runoff Depth = 0.60"**  
**75.71% Pervious = 8.355 ac 24.29% Impervious = 2.680 ac**

**COVENANT MEADOWS A**

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Type II 24-hr 10 YEAR Rainfall=4.25"

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**Summary for Subcatchment 5S: DIRECT**

Runoff = 1.65 cfs @ 11.97 hrs, Volume= 0.090 af, Depth> 3.90"

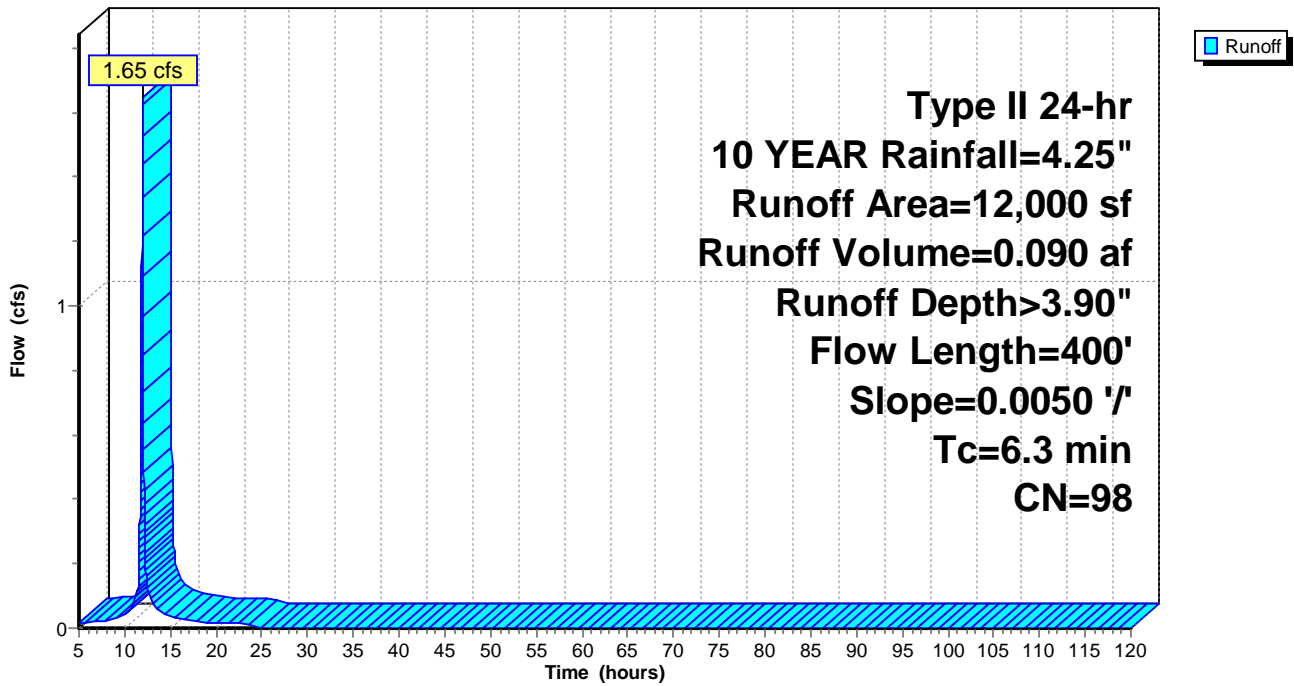
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 10 YEAR Rainfall=4.25"

Area (sf)	CN	Description
12,000	98	Paved parking, HSG A
12,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	400	0.0050	1.06		<b>Shallow Concentrated Flow, DITCH GRASSED</b> Grassed Waterway Kv= 15.0 fps

**Subcatchment 5S: DIRECT**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 10 YEAR Rainfall=4.25"

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**Summary for Subcatchment NE: PROPOSED**

Runoff = 0.88 cfs @ 12.09 hrs, Volume= 0.091 af, Depth= 0.45"

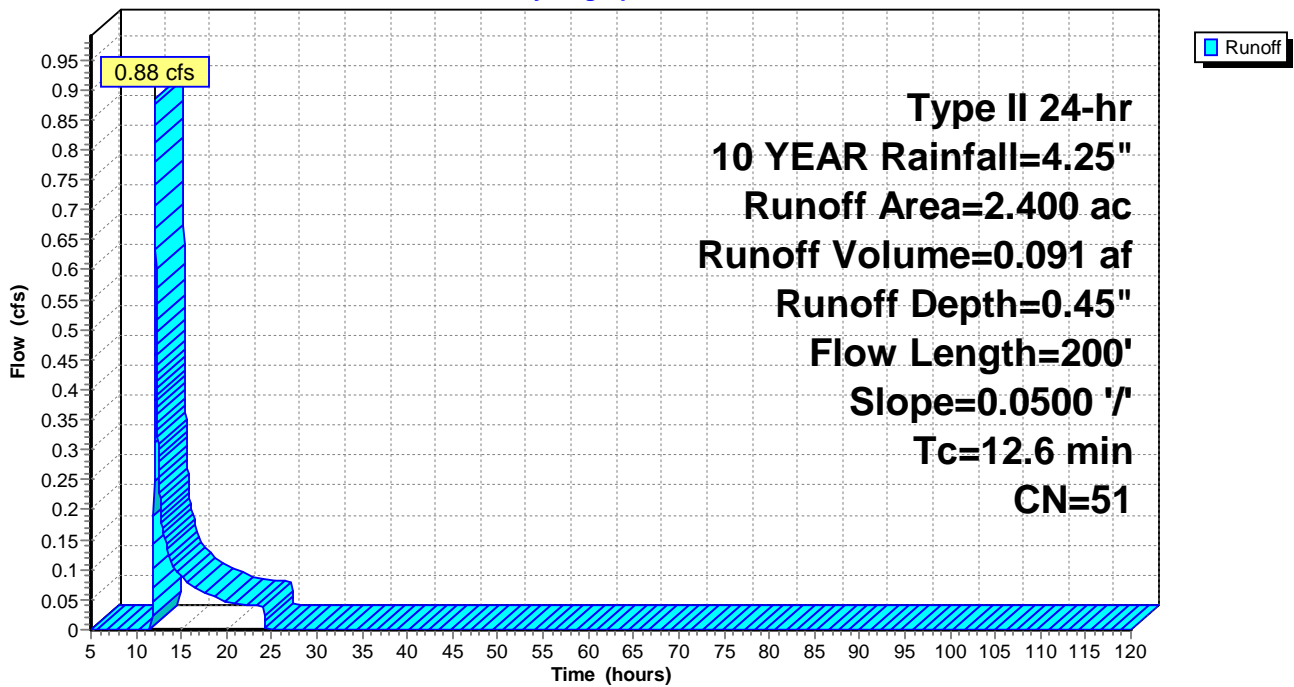
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 10 YEAR Rainfall=4.25"

Area (ac)	CN	Description
2.400	51	1 acre lots, 20% imp, HSG A
1.920		80.00% Pervious Area
0.480		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	200	0.0500	0.26		Sheet Flow, Sheet Flow Grass: Short n= 0.150 P2= 2.80"

**Subcatchment NE: PROPOSED**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 10 YEAR Rainfall=4.25"

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**Summary for Subcatchment NW: PROPOSED**

Runoff = 1.44 cfs @ 12.24 hrs, Volume= 0.221 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 10 YEAR Rainfall=4.25"

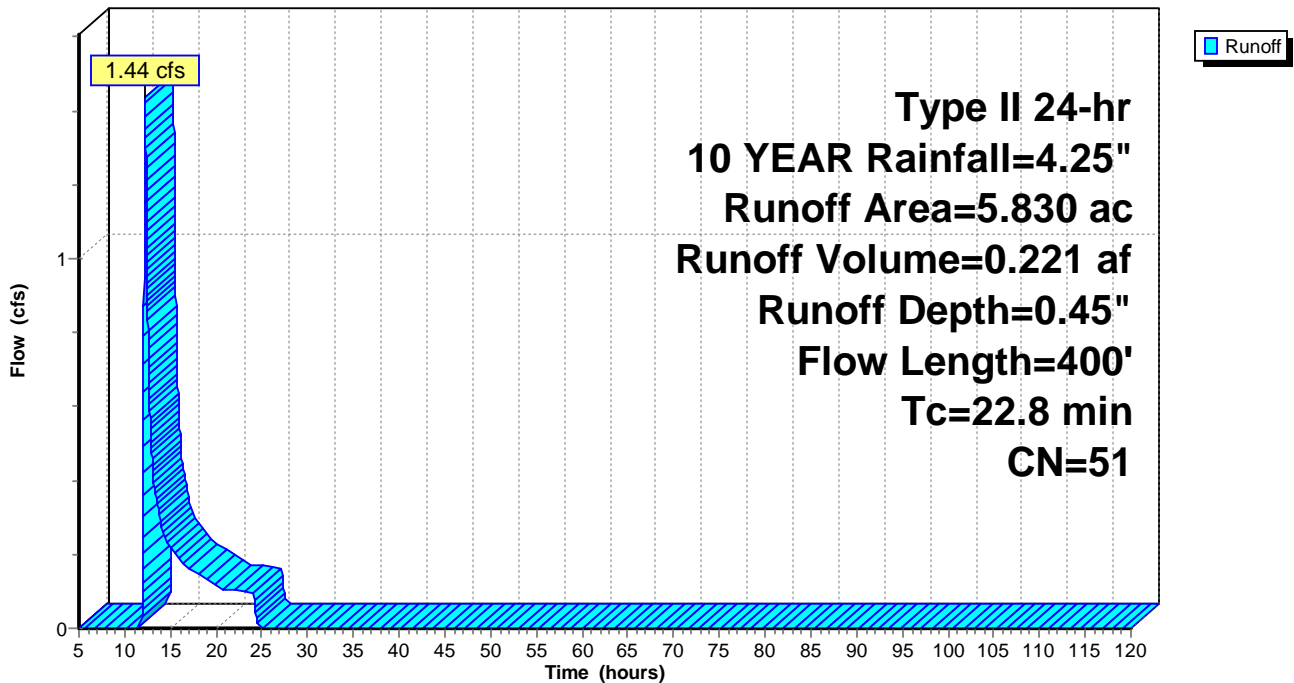
Area (ac)	CN	Description
5.830	51	1 acre lots, 20% imp, HSG A
4.664		80.00% Pervious Area
1.166		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	200	0.0150	0.16		<b>Sheet Flow, Sheet Flow</b>
					Grass: Short n= 0.150 P2= 2.80"
2.3	200	0.0050	1.44		<b>Shallow Concentrated Flow, CONCENTRATED</b>
					Paved Kv= 20.3 fps
22.8	400	Total			

**Subcatchment NW: PROPOSED**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 10 YEAR Rainfall=4.25"

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**Summary for Subcatchment SE: SE AREA**

Runoff = 2.09 cfs @ 12.07 hrs, Volume= 0.154 af, Depth= 0.73"

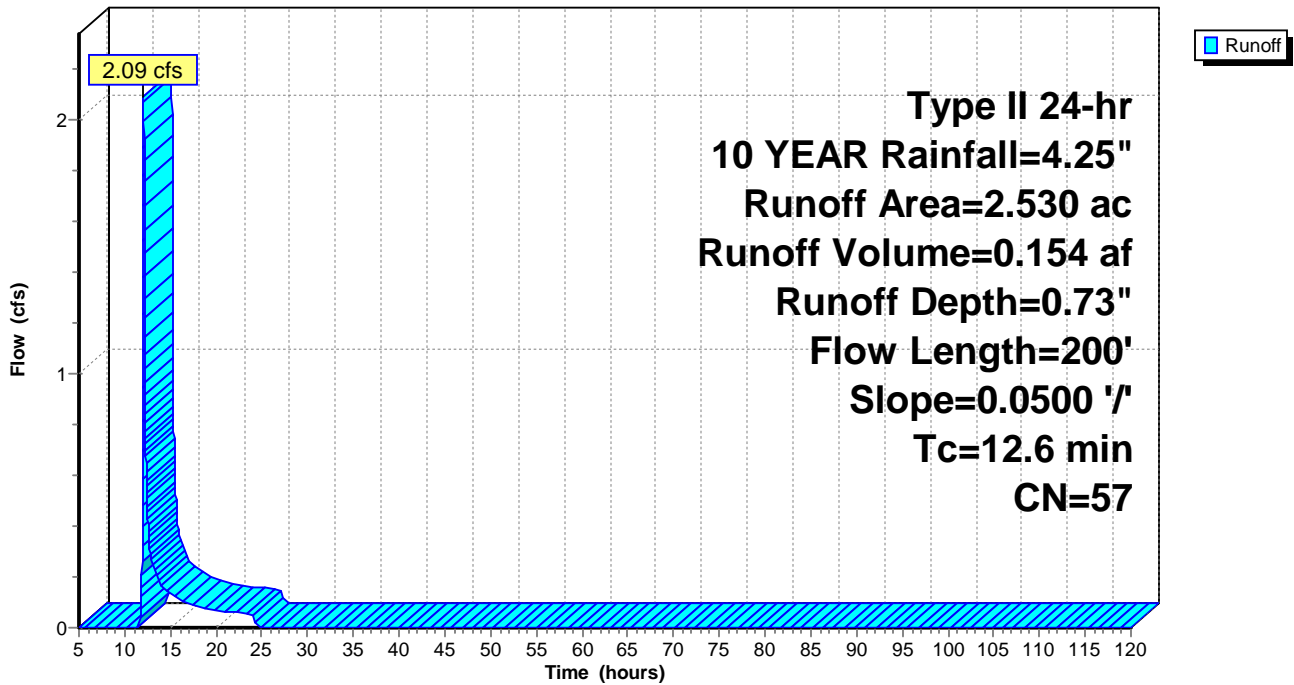
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 10 YEAR Rainfall=4.25"

Area (ac)	CN	Description
2.530	57	1/3 acre lots, 30% imp, HSG A
1.771		70.00% Pervious Area
0.759		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	200	0.0500	0.26		<b>Sheet Flow, Sheet Flow</b> Grass: Short n= 0.150 P2= 2.80"

**Subcatchment SE: SE AREA**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 10 YEAR Rainfall=4.25"

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**Summary for Pond 1P: NE POND**

Inflow Area = 2.400 ac, 20.00% Impervious, Inflow Depth = 0.45" for 10 YEAR event  
 Inflow = 0.88 cfs @ 12.09 hrs, Volume= 0.091 af  
 Outflow = 0.10 cfs @ 14.22 hrs, Volume= 0.091 af, Atten= 89%, Lag= 127.6 min  
 Discarded = 0.10 cfs @ 14.22 hrs, Volume= 0.091 af

Routing by Stor-Ind method, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 884.21' @ 14.22 hrs Surf.Area= 5,387 sf Storage= 1,125 cf

Plug-Flow detention time= 120.4 min calculated for 0.091 af (100% of inflow)  
 Center-of-Mass det. time= 120.4 min ( 1,058.8 - 938.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	21,286 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	5,118	0	0
885.00	6,374	5,746	5,746
886.00	7,720	7,047	12,793
887.00	9,265	8,493	21,286

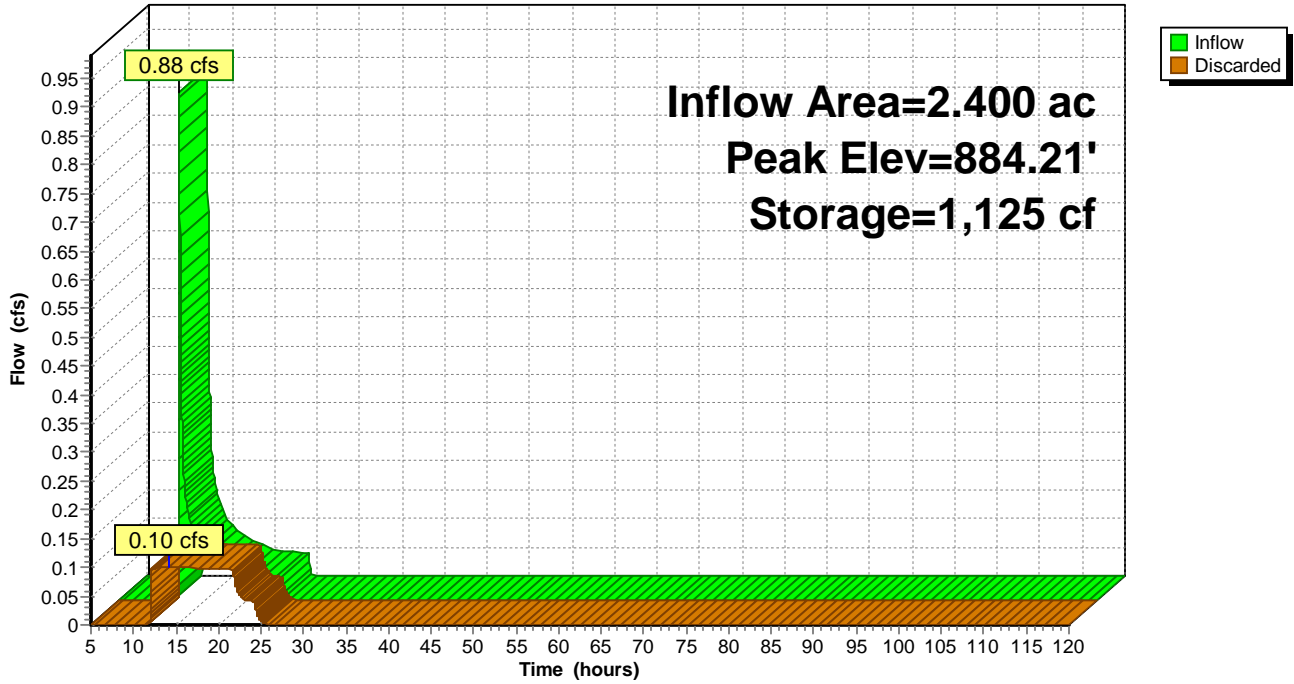
Device	Routing	Invert	Outlet Devices
#1	Discarded	884.00'	<b>0.800 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.10 cfs @ 14.22 hrs HW=884.21' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.10 cfs)

Pond 1P: NE POND

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 10 YEAR Rainfall=4.25"

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**Summary for Pond 2P: SE POND**

Inflow Area = 2.530 ac, 30.00% Impervious, Inflow Depth = 0.73" for 10 YEAR event  
 Inflow = 2.09 cfs @ 12.07 hrs, Volume= 0.154 af  
 Outflow = 0.12 cfs @ 15.55 hrs, Volume= 0.154 af, Atten= 94%, Lag= 208.4 min  
 Discarded = 0.12 cfs @ 15.55 hrs, Volume= 0.154 af

Routing by Stor-Ind method, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 884.48' @ 15.55 hrs Surf.Area= 6,382 sf Storage= 2,898 cf

Plug-Flow detention time= 291.2 min calculated for 0.154 af (100% of inflow)  
 Center-of-Mass det. time= 291.2 min ( 1,196.0 - 904.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	23,064 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	5,815	0	0
885.00	7,008	6,412	6,412
886.00	8,301	7,655	14,066
887.00	9,695	8,998	23,064

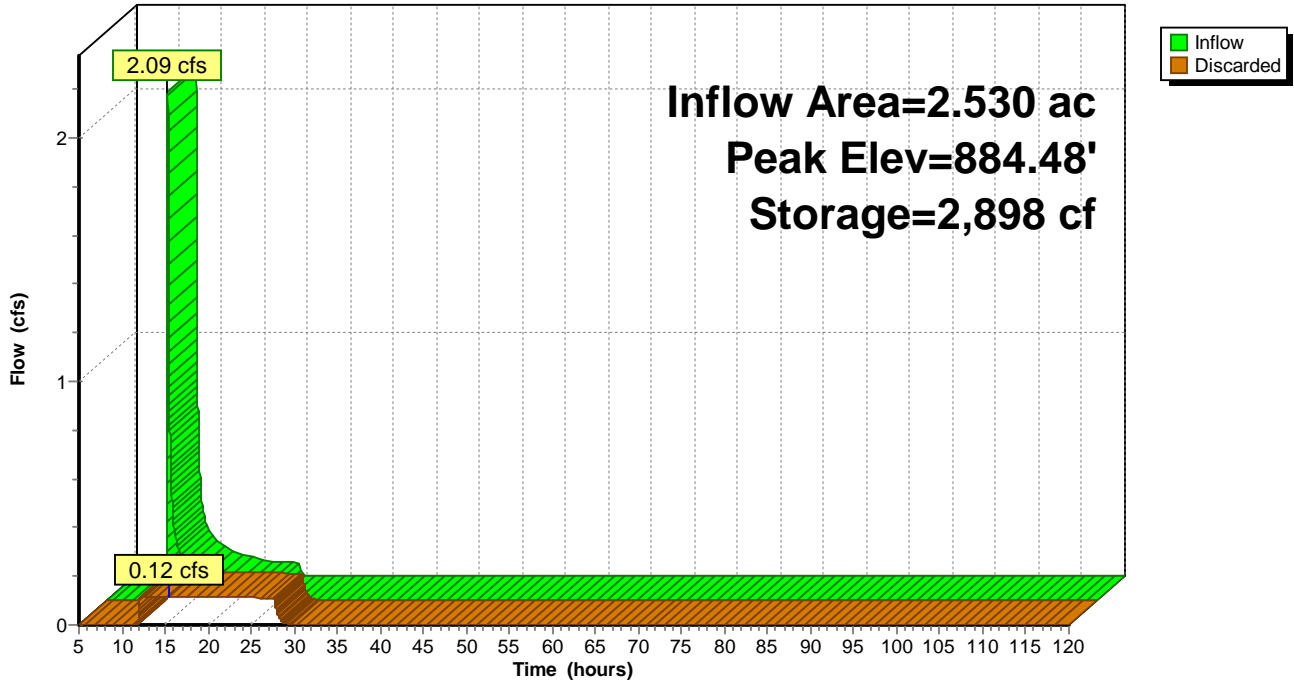
Device	Routing	Invert	Outlet Devices
#1	Discarded	884.00'	<b>0.800 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.12 cfs @ 15.55 hrs HW=884.48' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.12 cfs)

Pond 2P: SE POND

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 10 YEAR Rainfall=4.25"

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**Summary for Pond 3P: NW POND**

Inflow Area = 5.830 ac, 20.00% Impervious, Inflow Depth = 0.45" for 10 YEAR event  
 Inflow = 1.44 cfs @ 12.24 hrs, Volume= 0.221 af  
 Outflow = 0.16 cfs @ 17.22 hrs, Volume= 0.221 af, Atten= 89%, Lag= 298.8 min  
 Discarded = 0.16 cfs @ 17.22 hrs, Volume= 0.221 af

Routing by Stor-Ind method, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 894.46' @ 17.22 hrs Surf.Area= 8,509 sf Storage= 3,745 cf

Plug-Flow detention time= 291.3 min calculated for 0.221 af (100% of inflow)  
 Center-of-Mass det. time= 291.3 min ( 1,239.1 - 947.9 )

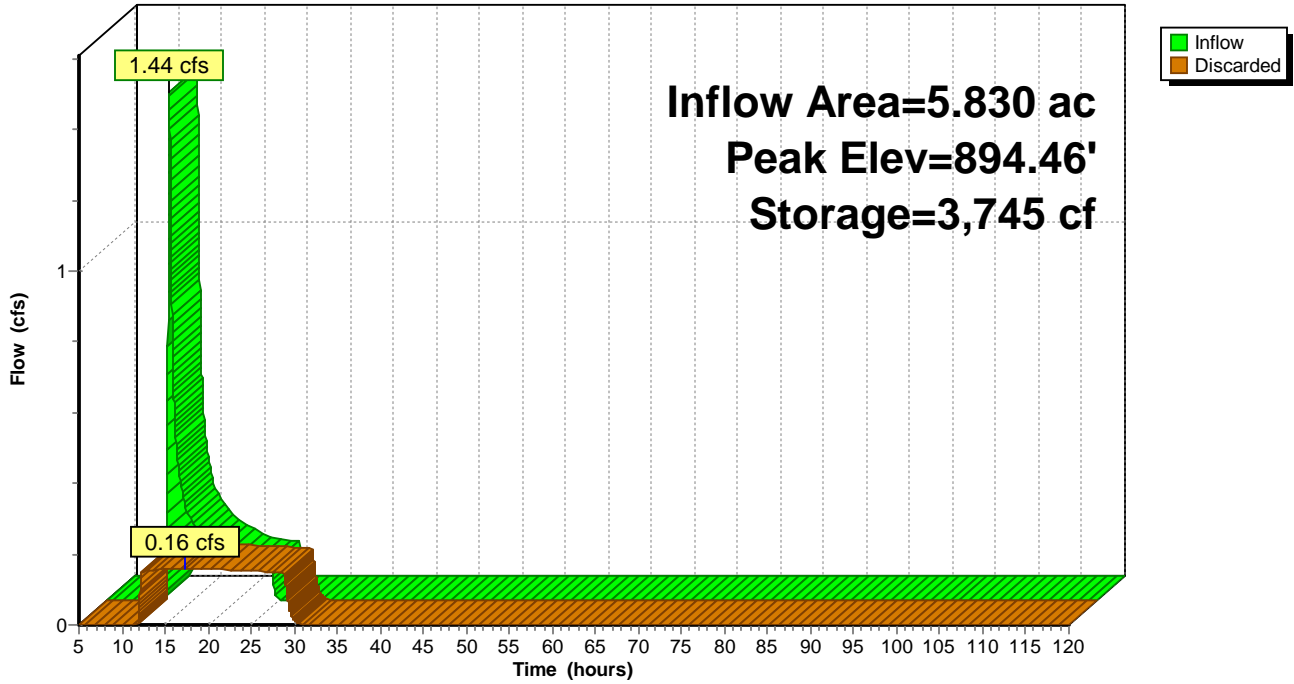
Volume	Invert	Avail.Storage	Storage Description
#1	894.00'	30,265 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
894.00	7,853	0	0
895.00	9,287	8,570	8,570
897.00	12,408	21,695	30,265

Device	Routing	Invert	Outlet Devices
#1	Discarded	894.00'	<b>0.800 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.16 cfs @ 17.22 hrs HW=894.46' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.16 cfs)

Pond 3P: NW POND

Hydrograph



**COVENANT MEADOWS A**

Type II 24-hr 100 YEAR Rainfall=7.06"

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Time span=5.00-120.00 hrs, dt=0.01 hrs, 11501 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 5S: DIRECT** Runoff Area=12,000 sf 100.00% Impervious Runoff Depth=6.56"  
Flow Length=400' Slope=0.0050 '/' Tc=6.3 min CN=98 Runoff=2.75 cfs 0.151 af

**Subcatchment NE: PROPOSED** Runoff Area=2.400 ac 20.00% Impervious Runoff Depth=1.79"  
Flow Length=200' Slope=0.0500 '/' Tc=12.6 min CN=51 Runoff=5.58 cfs 0.358 af

**Subcatchment NW: PROPOSED** Runoff Area=5.830 ac 20.00% Impervious Runoff Depth=1.79"  
Flow Length=400' Tc=22.8 min CN=51 Runoff=9.50 cfs 0.870 af

**Subcatchment SE: SE AREA** Runoff Area=2.530 ac 30.00% Impervious Runoff Depth=2.35"  
Flow Length=200' Slope=0.0500 '/' Tc=12.6 min CN=57 Runoff=8.14 cfs 0.496 af

**Pond 1P: NE POND** Peak Elev=885.63' Storage=10,024 cf Inflow=5.58 cfs 0.358 af  
Outflow=0.13 cfs 0.358 af

**Pond 2P: SE POND** Peak Elev=886.10' Storage=14,864 cf Inflow=8.14 cfs 0.496 af  
Outflow=0.16 cfs 0.496 af

**Pond 3P: NW POND** Peak Elev=896.83' Storage=28,186 cf Inflow=9.50 cfs 0.870 af  
Outflow=0.22 cfs 0.870 af

**Total Runoff Area = 11.035 ac Runoff Volume = 1.875 af Average Runoff Depth = 2.04"**  
**75.71% Pervious = 8.355 ac 24.29% Impervious = 2.680 ac**

**COVENANT MEADOWS A**

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Type II 24-hr 100 YEAR Rainfall=7.06"

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**Summary for Subcatchment 5S: DIRECT**

Runoff = 2.75 cfs @ 11.97 hrs, Volume= 0.151 af, Depth> 6.56"

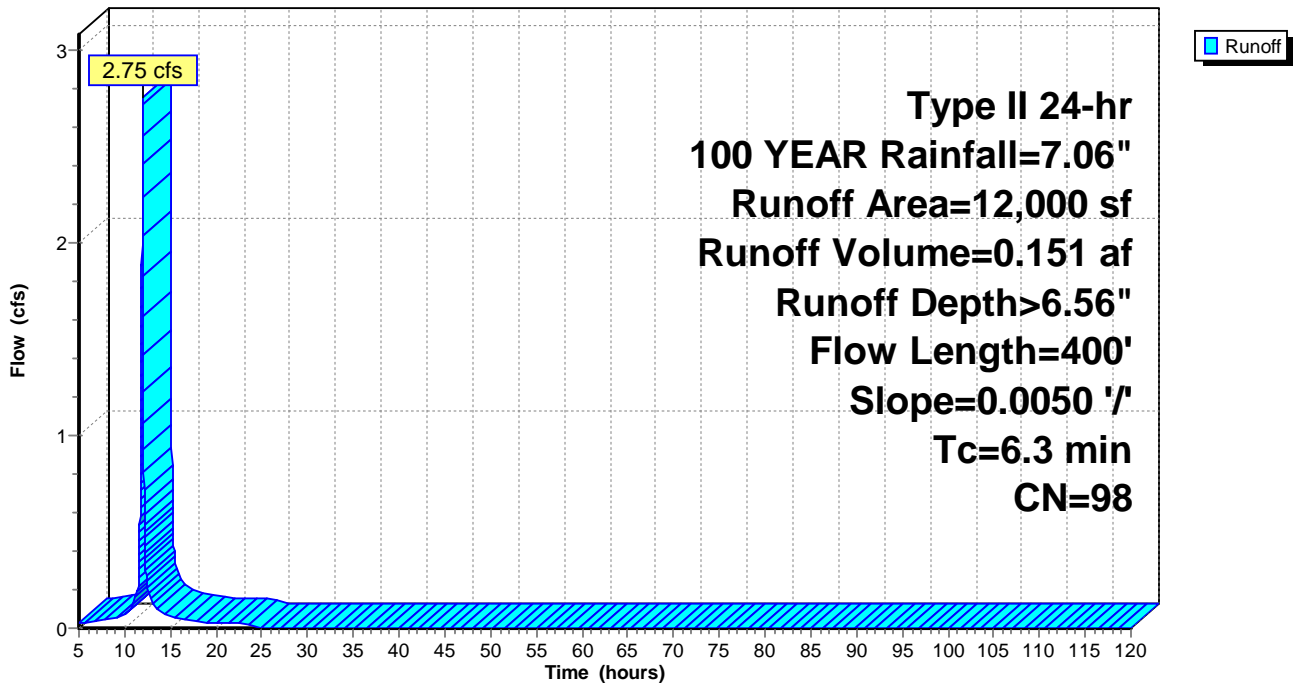
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 100 YEAR Rainfall=7.06"

Area (sf)	CN	Description
12,000	98	Paved parking, HSG A
12,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	400	0.0050	1.06		<b>Shallow Concentrated Flow, DITCH GRASSED</b> Grassed Waterway Kv= 15.0 fps

**Subcatchment 5S: DIRECT**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 100 YEAR Rainfall=7.06"

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**Summary for Subcatchment NE: PROPOSED**

Runoff = 5.58 cfs @ 12.06 hrs, Volume= 0.358 af, Depth= 1.79"

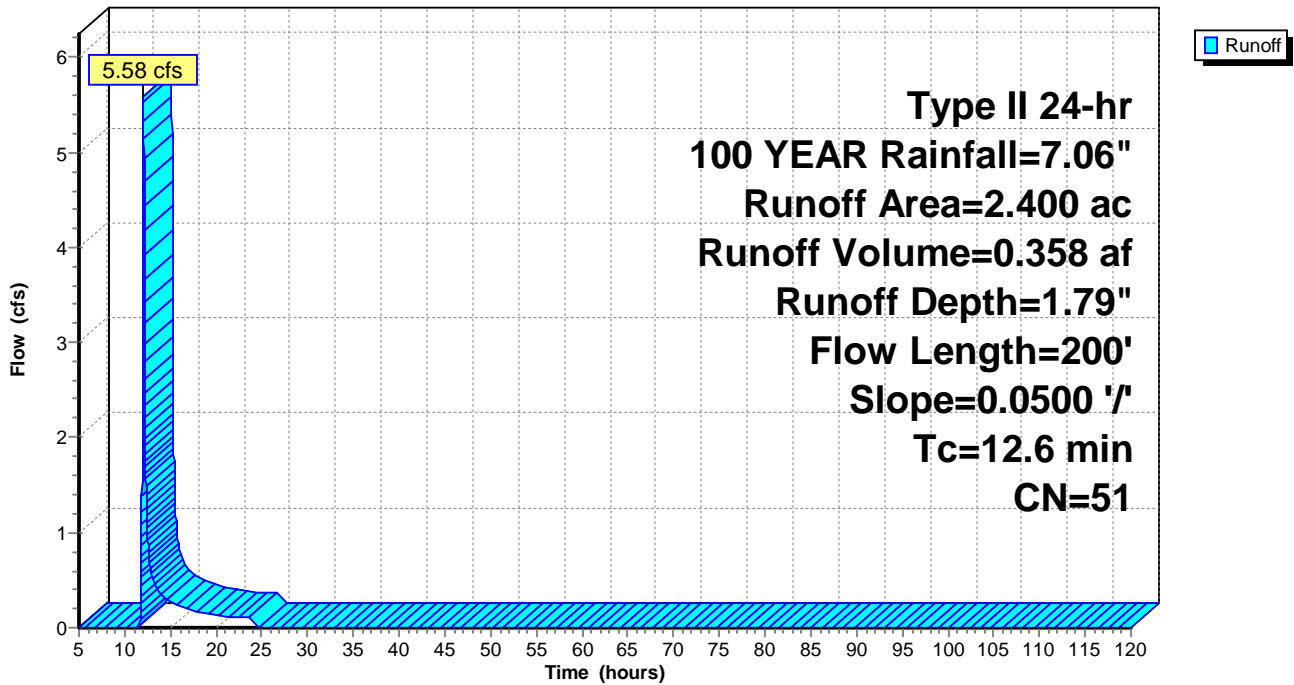
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 100 YEAR Rainfall=7.06"

Area (ac)	CN	Description
2.400	51	1 acre lots, 20% imp, HSG A
1.920		80.00% Pervious Area
0.480		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	200	0.0500	0.26		<b>Sheet Flow, Sheet Flow</b> Grass: Short n= 0.150 P2= 2.80"

**Subcatchment NE: PROPOSED**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 100 YEAR Rainfall=7.06"

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**Summary for Subcatchment NW: PROPOSED**

Runoff = 9.50 cfs @ 12.18 hrs, Volume= 0.870 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 100 YEAR Rainfall=7.06"

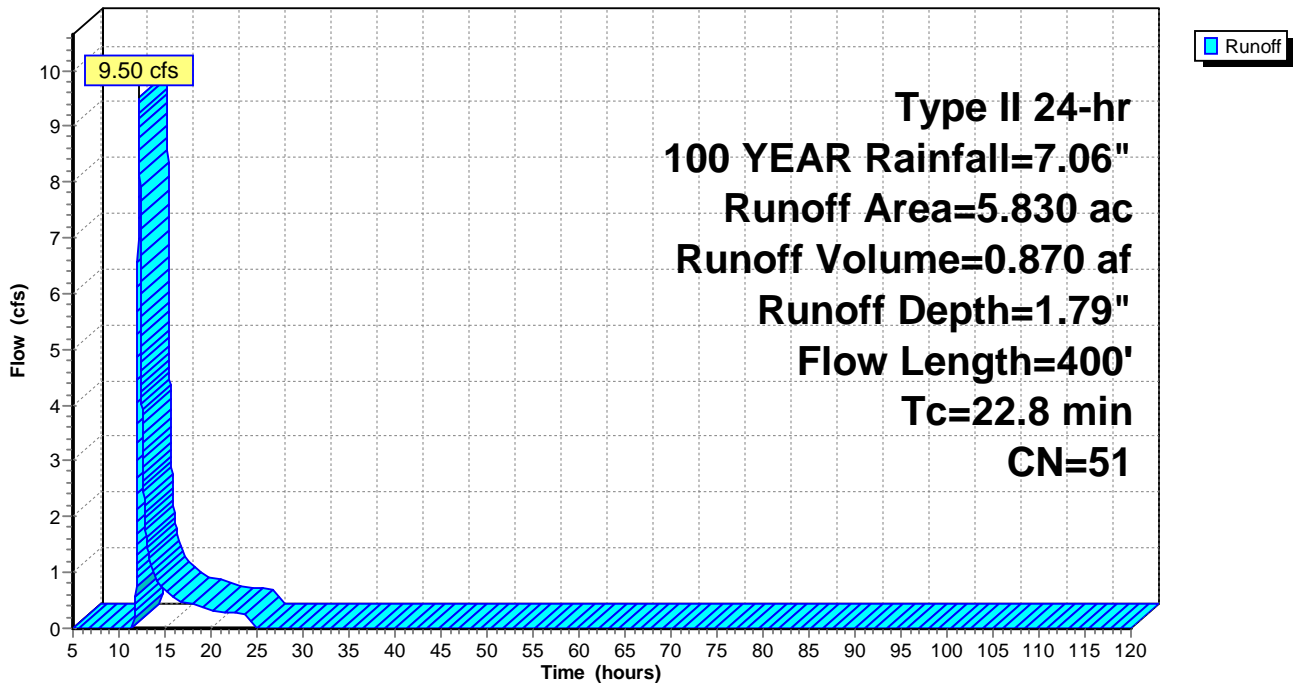
Area (ac)	CN	Description
5.830	51	1 acre lots, 20% imp, HSG A
4.664		80.00% Pervious Area
1.166		20.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	200	0.0150	0.16		<b>Sheet Flow, Sheet Flow</b>
					Grass: Short n= 0.150 P2= 2.80"
2.3	200	0.0050	1.44		<b>Shallow Concentrated Flow, CONCENTRATED</b>
					Paved Kv= 20.3 fps
22.8	400	Total			

**Subcatchment NW: PROPOSED**

Hydrograph



**COVENANT MEADOWS A**

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Type II 24-hr 100 YEAR Rainfall=7.06"

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**Summary for Subcatchment SE: SE AREA**

Runoff = 8.14 cfs @ 12.05 hrs, Volume= 0.496 af, Depth= 2.35"

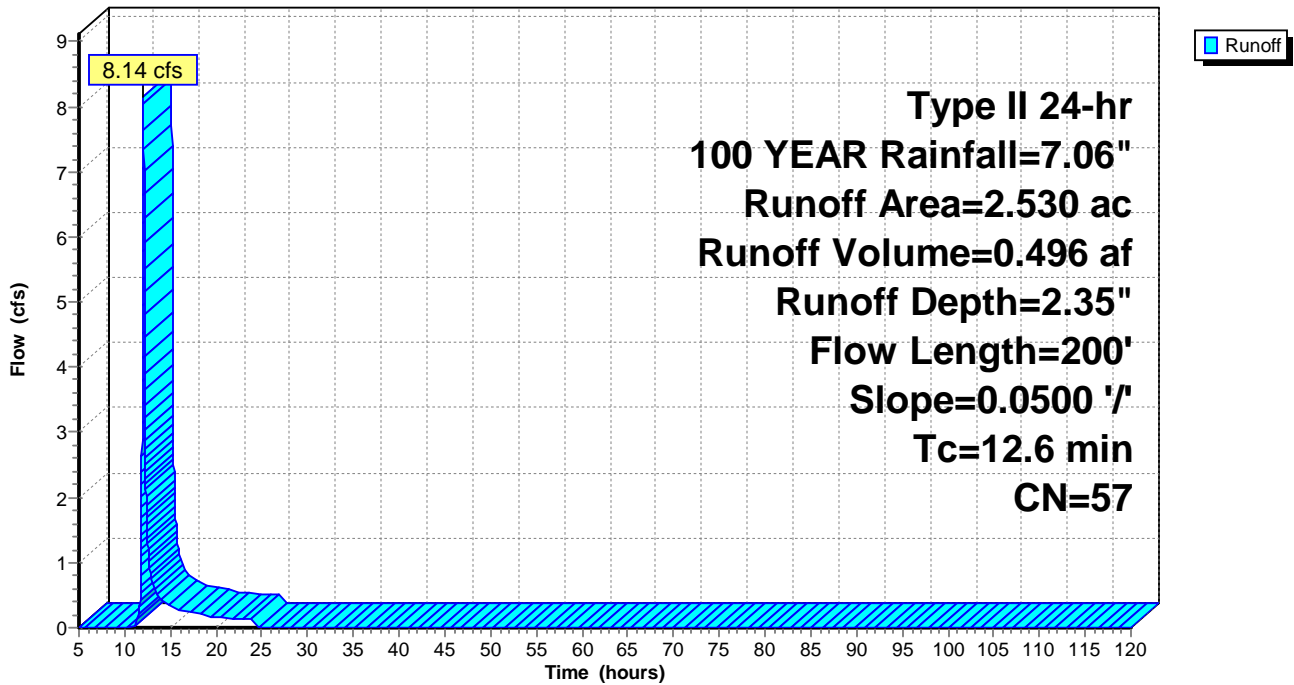
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
Type II 24-hr 100 YEAR Rainfall=7.06"

Area (ac)	CN	Description
2.530	57	1/3 acre lots, 30% imp, HSG A
1.771		70.00% Pervious Area
0.759		30.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	200	0.0500	0.26		<b>Sheet Flow, Sheet Flow</b> Grass: Short n= 0.150 P2= 2.80"

**Subcatchment SE: SE AREA**

Hydrograph



**COVENANT MEADOWS A**

Type II 24-hr 100 YEAR Rainfall=7.06"

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**Summary for Pond 1P: NE POND**

Inflow Area = 2.400 ac, 20.00% Impervious, Inflow Depth = 1.79" for 100 YEAR event  
 Inflow = 5.58 cfs @ 12.06 hrs, Volume= 0.358 af  
 Outflow = 0.13 cfs @ 19.73 hrs, Volume= 0.358 af, Atten= 98%, Lag= 460.2 min  
 Discarded = 0.13 cfs @ 19.73 hrs, Volume= 0.358 af

Routing by Stor-Ind method, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 885.63' @ 19.73 hrs Surf.Area= 7,221 sf Storage= 10,024 cf

Plug-Flow detention time= 858.8 min calculated for 0.358 af (100% of inflow)  
 Center-of-Mass det. time= 858.9 min ( 1,738.9 - 880.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	21,286 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	5,118	0	0
885.00	6,374	5,746	5,746
886.00	7,720	7,047	12,793
887.00	9,265	8,493	21,286

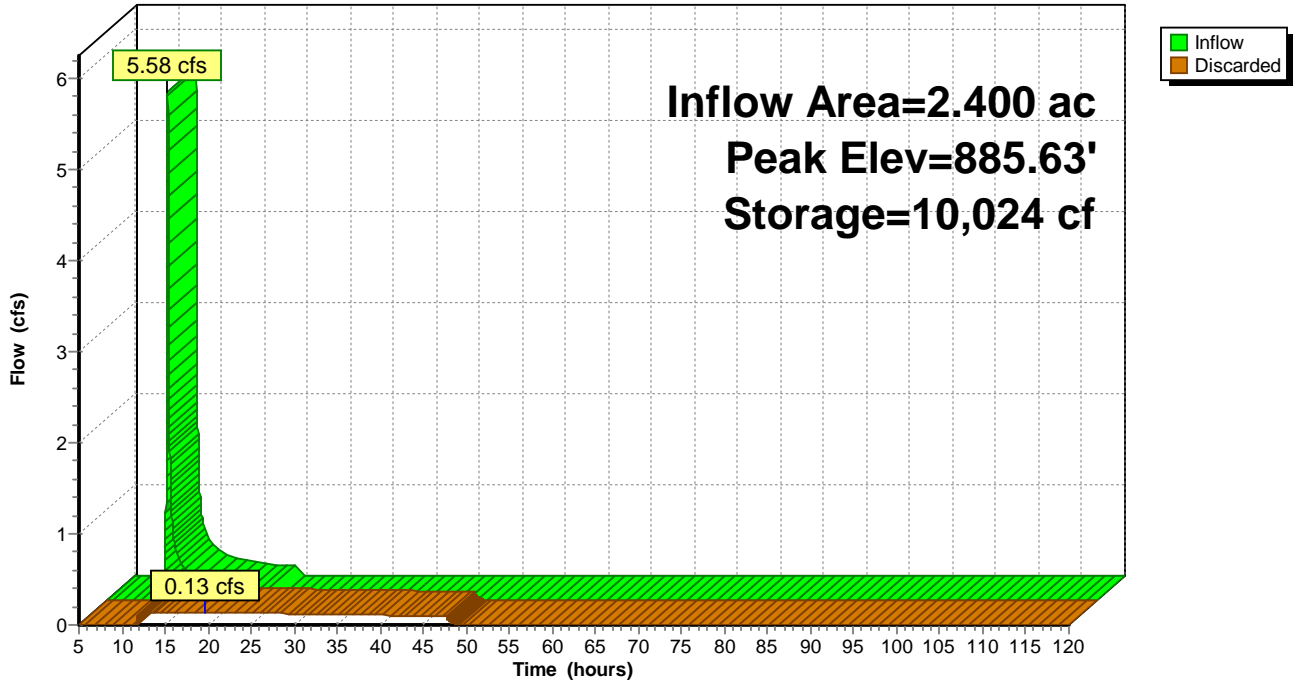
Device	Routing	Invert	Outlet Devices
#1	Discarded	884.00'	<b>0.800 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.13 cfs @ 19.73 hrs HW=885.63' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.13 cfs)

Pond 1P: NE POND

Hydrograph



**COVENANT MEADOWS A**

Type II 24-hr 100 YEAR Rainfall=7.06"

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**Summary for Pond 2P: SE POND**

Inflow Area = 2.530 ac, 30.00% Impervious, Inflow Depth = 2.35" for 100 YEAR event  
 Inflow = 8.14 cfs @ 12.05 hrs, Volume= 0.496 af  
 Outflow = 0.16 cfs @ 20.05 hrs, Volume= 0.496 af, Atten= 98%, Lag= 480.1 min  
 Discarded = 0.16 cfs @ 20.05 hrs, Volume= 0.496 af

Routing by Stor-Ind method, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 886.10' @ 20.05 hrs Surf.Area= 8,434 sf Storage= 14,864 cf

Plug-Flow detention time= 1,063.2 min calculated for 0.496 af (100% of inflow)  
 Center-of-Mass det. time= 1,063.3 min ( 1,926.4 - 863.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	884.00'	23,064 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
884.00	5,815	0	0
885.00	7,008	6,412	6,412
886.00	8,301	7,655	14,066
887.00	9,695	8,998	23,064

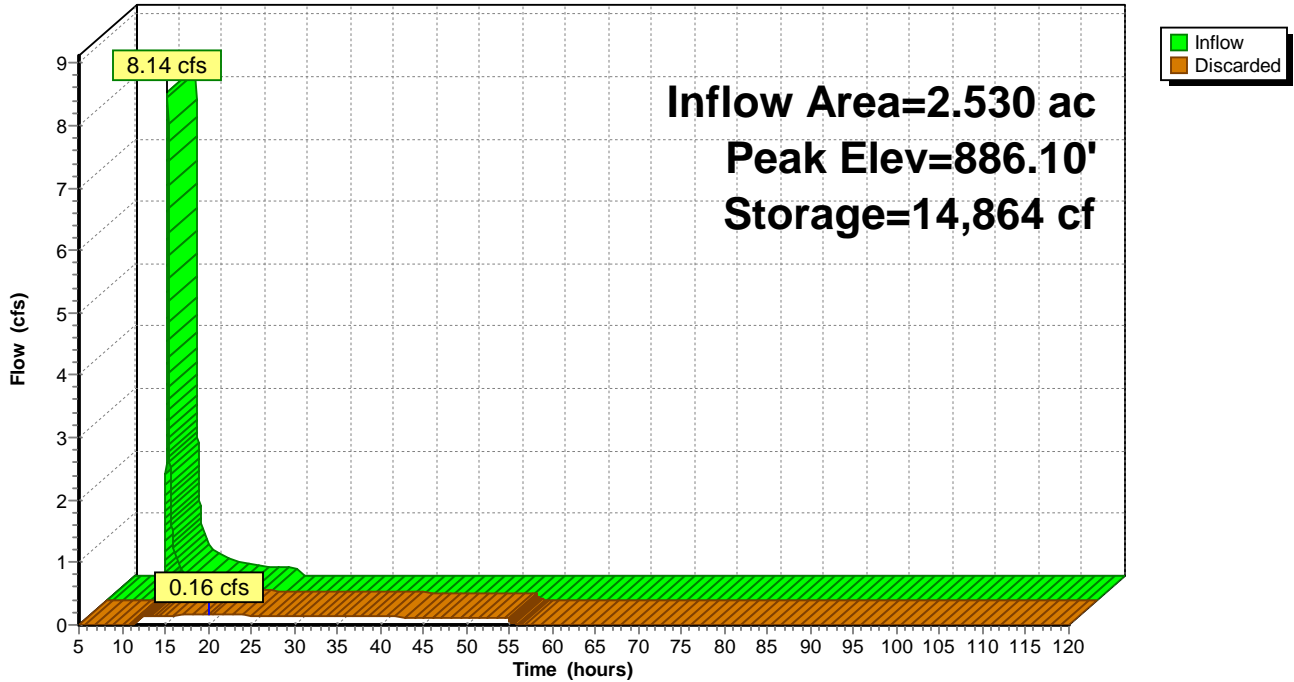
Device	Routing	Invert	Outlet Devices
#1	Discarded	884.00'	<b>0.800 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.16 cfs @ 20.05 hrs HW=886.10' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.16 cfs)

Pond 2P: SE POND

Hydrograph



**COVENANT MEADOWS A**

Type II 24-hr 100 YEAR Rainfall=7.06"

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**Summary for Pond 3P: NW POND**

Inflow Area = 5.830 ac, 20.00% Impervious, Inflow Depth = 1.79" for 100 YEAR event  
 Inflow = 9.50 cfs @ 12.18 hrs, Volume= 0.870 af  
 Outflow = 0.22 cfs @ 24.20 hrs, Volume= 0.870 af, Atten= 98%, Lag= 720.7 min  
 Discarded = 0.22 cfs @ 24.20 hrs, Volume= 0.870 af

Routing by Stor-Ind method, Time Span= 5.00-120.00 hrs, dt= 0.01 hrs  
 Peak Elev= 896.83' @ 24.20 hrs Surf.Area= 12,144 sf Storage= 28,186 cf

Plug-Flow detention time= 1,359.3 min calculated for 0.870 af (100% of inflow)  
 Center-of-Mass det. time= 1,359.4 min ( 2,248.8 - 889.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	894.00'	30,265 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

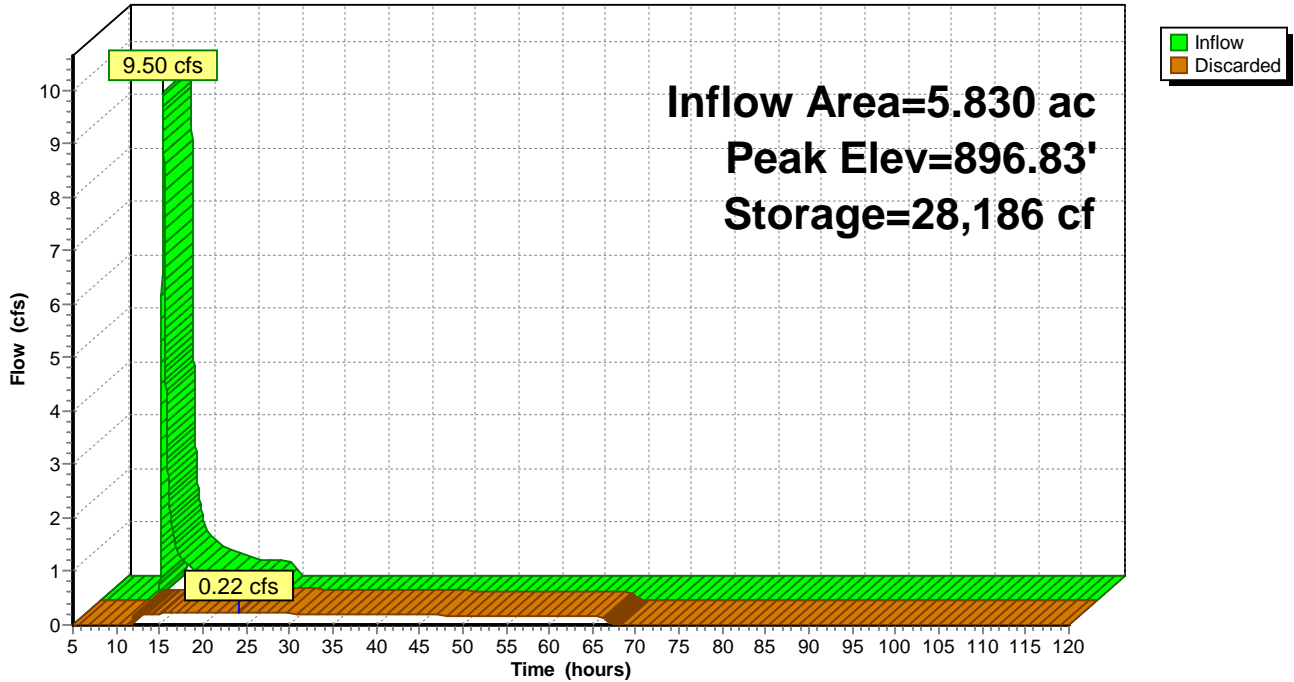
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
894.00	7,853	0	0
895.00	9,287	8,570	8,570
897.00	12,408	21,695	30,265

Device	Routing	Invert	Outlet Devices
#1	Discarded	894.00'	<b>0.800 in/hr Exfiltration over Surface area</b>

**Discarded OutFlow** Max=0.22 cfs @ 24.20 hrs HW=896.83' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.22 cfs)

Pond 3P: NW POND

Hydrograph





## **COVENANT MEADOWS**

Storm water summary

Rev 5-4-17

Covenant Meadows is a 12 lot proposed single family residential subdivision that lies roughly at 173<sup>rd</sup> Ave NW, Germanium St NW and Trott Brook in the City of Ramsey.

Three ponds are proposed for the site. All will be infiltration type. This type of ponding was chosen as no storm sewer or other viable outlets exist on the site. All ponds retain the 100 year storm event. An area of direct runoff will occur. This is created by the connection of the property to Germanium Street. This strip of land does not provide an area to treat storm water. Per attached HydroCad analysis, the 2, 10, 100 year release rate is 1.10, 1.65, 2.74 cfs vs 0, 0.09, 3.15 cfs existing respectively. With pool volumes less than 3 feet deep for the 100 year event and an infiltration rate of .8 inches per hour, dry time for the ponds will be less than 48 hours.

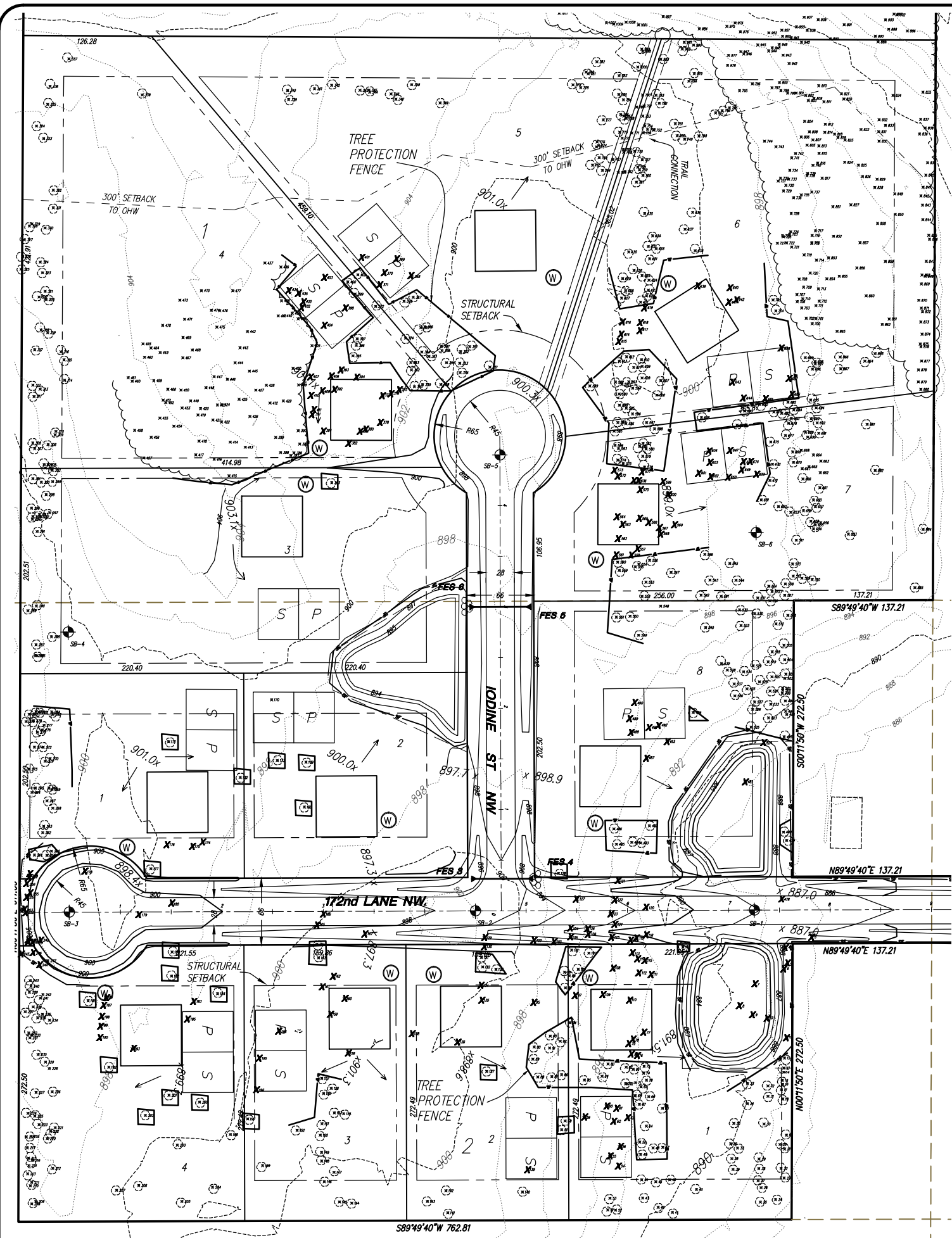
ATLAS 14 rainfall rates were used to analyze the system as depicted in the attached HydroCad Report. Steep slopes exposed to water are not proposed for this project. No wetlands are located on the site. Site soils are sands with the exception of the area by the NE Pond and SE Pond. A clay layer is found here. This layer will be excavated to access the well draining sands beneath. Sand will be loosely placed in the excavation to promote water absorption into the ground.

The area of development is 11.6 acres. The impervious area of the plat is 2.30 acres. The impervious is comprised of housepads, driveways, and streets.

Silt fences will be placed after pond construction to prevent soils from depositing into the ponds. Pond grading and seeding notes are found on the attached plans.



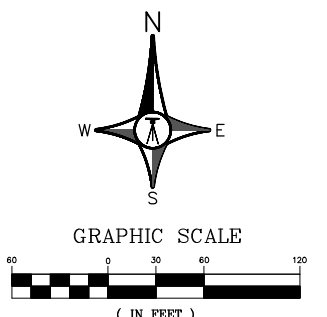




NOTE: TREES TO REMAIN SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITY BY MEANS OF FENCING OR OTHER APPROVED METHOD.

TREES SAVED

12 Pine, red	13	199 Pine, red	7	334 Pine, red	15	484 Pine, red	10
13 Pine, red	13	200 Pine, red	12	335 Pine, red	16	485 Pine, red	16
14 Pine, red	9	201 Pine, red	7	336 Pine, red	9	486 Pine, red	12
15 Pine, red	9	202 Pine, red	14	337 Pine, red	13	494 Pine, red	11
16 Pine, red	8	203 Pine, red	15	338 Pine, red	9	495 Pine, red	15
17 Pine, red	10	204 Cedar, red	6	339 Pine, red	16	496 Pine, red	15
18 Pine, red	12	205 Pine, red	9	340 Pine, red	14	497 Pine, red	10
19 Pine, red	12	206 Pine, red	22	341 Pine, red	19	498 Pine, red	9
20 Pine, red	11	207 Pine, red	11	342 Pine, red	15	499 Pine, red	8
21 Pine, red	11	208 Pine, red	20	343 Pine, red	13	500 Pine, red	8
22 Pine, red	10	209 Pine, red	12	344 Pine, red	14	501 Pine, red	10
23 Pine, red	10	210 Pine, red	12	345 Pine, red	13	502 Pine, red	9
24 Pine, red	16	211 Pine, red	14	346 Pine, red	12	503 Pine, red	9
25 Pine, red	14	212 Pine, red	17	347 Pine, red	13	504 Pine, red	8
26 Pine, red	13	213 Pine, red	11	348 Pine, red	15	505 Pine, red	15
27 Pine, red	12	214 Pine, red	15	349 Pine, red	11	506 Pine, red	11
28 Pine, red	14	215 Pine, red	12	351 Pine, red	9	507 Pine, red	10
29 Pine, red	15	216 Pine, red	16	352 Oak, red	6	508 Pine, red	12
30 Pine, red	15	217 Pine, red	13	353 Oak, red	8	509 Pine, red	11
31 Pine, red	13	218 Pine, red	12	355 Oak, red	7	510 Pine, red	13
32 Pine, red	16	219 Pine, red	10	356 Oak, red	7	511 Pine, red	12
33 Pine, red	12	220 Pine, red	13	357 Oak, bur	23	512 Pine, red	12
34 Pine, red	6	221 Pine, red	16	358 Oak, red	10	513 Pine, red	11
35 Pine, red	15	222 Pine, red	12	359 Oak, red	22	514 Pine, red	12
36 Pine, red	18	223 Pine, red	12	360 Oak, red	5	515 Pine, red	13
37 Pine, red	18	224 Pine, red	12	361 Oak, red	23	516 Pine, red	12
38 Pine, red	16	225 Pine, red	16	362 Oak, red	14	517 Pine, red	15
39 Pine, red	16	226 Pine, red	14	363 Oak, red	13	518 Pine, red	13
40 Cedar, red	7	227 Pine, red	13	364 Oak, red	4	519 Pine, red	12
41 Pine, red	18	228 Pine, red	12	365 Oak, red	25	520 Pine, red	11
42 Pine, red	13	229 Pine, red	12	366 Oak, bur	6	521 Pine, red	9
43 Pine, red	14	230 Pine, red	10	367 Oak, red	36	522 Pine, red	11
44 Pine, red	12	231 Pine, red	12	372 Oak, red	12	523 Pine, red	12
45 Pine, red	15	232 Pine, red	11	373 Oak, red	29	525 Pine, red	15
46 Pine, red	18	233 Pine, red	11	374 Oak, red	32	526 Pine, red	12
47 Pine, red	16	234 Pine, red	15	383 Pine, scotch	15	527 Pine, red	12
48 Pine, red	10	235 Pine, red	14	385 Oak, red	21	528 Pine, red	13
49 Pine, red	18	236 Pine, red	11	386 Oak, red	5	529 Pine, red	14
50 Pine, red	20	237 Pine, red	11	387 Oak, red	4	530 Pine, red	13
51 Pine, red	10	238 Pine, red	10	388 Oak, red	7	531 Pine, red	13
52 Pine, red	11	239 Pine, red	12	389 Oak, red	5	532 Pine, red	14
53 Pine, red	13	240 Pine, red	9	390 Oak, red	34	533 Pine, red	15
57 Pine, red	16	241 Pine, red	12	395 Oak, red	35	534 Pine, red	14
58 Pine, red	11	242 Pine, red	12	396 Oak, red	11	535 Pine, red	12
64 Pine, red	14	243 Pine, red	8	397 Oak, red	11	536 Pine, red	15
65 Pine, red	14	245 Pine, red	7	399 Oak, red	22	537 Pine, red	13
66 Pine, red	11	260 Pine, red	13	400 Oak, red	42	538 Pine, red	15
67 Pine, red	11	261 Pine, red	9	402 Oak, red	7	539 Pine, red	11
68 Pine, red	9	262 Pine, red	11	405 Oak, red	35	540 Pine, red	15
69 Pine, red	13	263 Pine, red	13	407 Oak, red	20	541 Pine, red	13
70 Pine, red	8	264 Pine, red	11	409 Oak, red	12	542 Pine, red	12
71 Pine, red	8	265 Pine, red	15	410 Oak, red	8	543 Pine, red	14
72 Pine, red	9	266 Pine, red	11	412 Oak, red	21	544 Pine, red	13
73 Pine, red	10	267 Pine, red	12	413 Oak, red	32	545 Pine, red	16
74 Pine, red	10	268 Pine, red	14	414 Oak, red	36	546 Pine, red	12
75 Pine, red	11	269 Pine, red	14	415 Oak, red	24	547 Pine, red	14
81 Pine, red	6	270 Cedar, red	6	416 Oak, red	4	548 Pine, red	17
82 Pine, red	15	271 Pine, red	16	417 Oak, red	5	549 Pine, red	12
83 Pine, scotch	5	272 Pine, red	14	418 Oak, red	7		
84 Pine, red	13	273 Pine, red	10	419 Oak, red	7		
85 Pine, red	18	274 Pine, red	12	420 Oak, red	6		
86 Pine, red	14	275 Pine, red	10	421 Oak, red	4		
87 Pine, red	11	276 Pine, red	15	422 Oak, red	4		
88 Pine, red	17	277 Pine, red	11	423 Oak, red	6		
89 Pine, red	12	278 Pine, red	11	424 Oak, red	4		
90 Pine, red	15	279 Pine, red	9	425 Oak, red	9		
91 Pine, red	16	280 Pine, red	8	426 Oak, red	13		
92 Pine, red	15	281 Pine, red	14	427 Oak, red	8		
93 Pine, red	14	282 Pine, red	12	428 Oak, red	11		
94 Pine, red	12	283 Pine, red	10	429 Oak, red	36		
95 Pine, red	13	284 Pine, red	14	430 Oak, red	27		
96 Pine, red	14	285 Pine, red	8	431 Oak, red	14		
98 Pine, red	15	286 Pine, red	8	436 Oak, red	33		
99 Pine, red	13	287 Pine, red	8	437 Oak, red	5		
101 Pine, red	15	288 Pine, red	8	438 Oak, red	16		
111 Pine, red	15	289 Pine, red	12	439 Oak, red	9		
112 Pine, red	14	290 Pine, red	12	440 Oak, red	9		
113 Pine, red	10	291 Pine, red	12	441 Oak, red	15		
114 Pine, red	9	292 Pine, red	14	442 Oak, red	36		
115 Pine, red	14	293 Pine, red	8	443 Oak, red	12		
116 Pine, red	13	294 Pine, red	8	444 Oak, red	23		
117 Pine, red	13	295 Pine, red	10	445 Oak, red	36		
128 Pine, red	11	296 Pine, red	14	446 Oak, red	16		
131 Pine, red	12	297 Pine, red	12	447 Oak, red	35		
132 Pine, red	11	298 Pine, red	15	448 Oak, red	14		
133 Pine, red	13	299 Pine, red	12	449 Oak, red	6		
137 Pine, red	14	300 Pine, red	12	450 Oak, red	15		
138 Cedar, red	7	301 Pine, red	12	451 Oak, red	7		
140 Pine, red	11	302 Pine, red	12	452 Oak, red	5		
141 Pine, red	12	303 Pine, red	11	453 Oak, red	5		
142 Pine, red	11	304 Pine, red	10	454 Oak, red	5		
143 Pine, red	11	305 Pine, red	13	455 Oak, red	7		
144 Cedar, red	7	306 Pine, red	13	456 Oak, red	40		
145 Pine, red	12	307 Pine, red	12	457 Oak, red	7		
146 Pine, red	11	308 Pine, red	16	458 Cedar, red	9		
147 Pine, red	13	309 Pine, red	12	459 Oak, red	9		
148 Pine, red	13	310 Pine, red	15	460 Oak, red	10		
149 Pine, red	12	311 Pine, red	13	461 Oak, red	6		
150 Pine, red	12	312 Pine, red	13	462 Oak, red	27		
151 Pine, red	22	313 Pine, red	12	463 Oak, red	38		
152 Pine, red	13	314 Pine, red	13	464 Oak, red	12		
153 Pine, red	15	315 Pine, red	16	465 Oak, red	14		
154 Pine, red	12	316 Pine, red	14	466 Oak, red	5		
155 Pine, red	13	317 Pine, red	12	467 Oak, red	21		
156 Pine, red	12	318 Pine, red	11	468 Oak, red	24		
157 Pine, red	10	319 Pine, red	12	469 Oak, red	15		
163 Pine, red	12	320 Pine, red	13	470 Oak, red	7		
164 Pine, red	12	321 Pine, red	18	471 Oak, red	9		
168 Pine, red	6	322 Pine, red	10	472 Oak, red	7		
169 Cedar, red	7	323 Pine, red	12	473 Oak, red	5		
171 Pine, red	13	324 Pine, red	12	474 Oak, red	42		
172 Pine, red	11	325 Pine, red	9	475 Oak, red	20		
173 Pine, red	10	326 Pine, white	16	476 Oak, red	24		
177 Pine, red	13	327 Pine, red	11	477 Oak, red	35		
181 Pine, red	12	328 Pine, red	8	479 Pine, red	11		
184 Cedar, red	6	329 Pine, red	9	480 Pine, red	13		
191 Pine, red	13	330 Pine, red	9	482 Pine, red	12		
192 Pine, red	14	331 Pine, red	12	483 Pine, red	7		
197 Pine, red	12	332 Pine, red	10				
198 Pine, red	13	333 Pine, red	6				



**LINE TYPE & SYMBOL LEGEND**

FLARED END SECTION
STORM SEWER
SB-5 DENOTES SOIL BORING
DRAIN FIELD LOC P = PRIMARY S = SECONDARY
PROPOSED WELL LOC. EXIST TREE LINE
TREE FENCE
SILT FENCE
PROPOSED CONTOUR
EXIST CONTOUR
SETBACK
EASEMENT
LOT LINE
R/W
EDGE OF BITUMINOUS CENTERLINE

TREE PROTECTION FENCE SHALL BE INSTALLED AND THE LOCATION APPROVED BY THE CITY BEFORE COMMENCEMENT OF OTHER WORK, INCLUDING SILT FENCE INSTALLATION.

AN ARBORIST SHALL BE CONSULTED TO DEVELOP A PLAN TO PROTECT EXISTING OAK TREES FROM OAK WILT.

ANY CLEARING OF OAK TREES SHALL BE PERFORMED PRIOR TO APRIL 15TH OR AFTER JULY 15TH TO MINIMIZE EXPOSURE OR INTRODUCTION OF OAK WILT.

DATE	3/23/17	DATE	5/3/17
REVISIONS	TREE FENCE	REV. POND	
BY		RECORD DRAWING	

**ROSELL ENGINEERING, LLC**  
6192 267 TH CT WYOMING, MN 55092  
PHONE: 763.286.0521

**COVENANT MEADOWS**  
TREE PLAN  
RAMSEY, MINNESOTA

DATE: 2/2/17 REG. NO. 24219  
Brent Roszell  
Brent Roszell

SCALE: AS SHOWN  
PROJECT: RE-32  
CHECKED: BTR  
APPROVED: BTR

**T1**

TREES SAVED

550	Pine, red	14
551	Pine, red	11
552	Pine, red	15
553	Cedar, red	6
554	Pine, red	12
555	Pine, red	9
556	Pine, red	9
559	Pine, red	9
560	Pine, red	10
574	Pine, red	11
575	Pine, red	13
576	Pine, red	11
579	Pine, red	10
580	Pine, red	9
581	Pine, red	7
582	Pine, red	12
583	Pine, red	13
584	Pine, red	13
585	Pine, red	10
586	Pine, red	10
587	Pine, red	8
588	Pine, red	9
589	Pine, red	12
590	Pine, red	9
591	Pine, red	9
592	Pine, red	8
593	Pine, red	9
594	Pine, red	6
595	Pine, red	10
596	Pine, red	8
597	Pine, red	11
598	Pine, red	18
605	Pine, red	13
606	Pine, red	14
607	Pine, red	13
608	Pine, red	11
609	Pine, red	11
610	Pine, red	13
611	Pine, red	11
612	Pine, red	12
613	Pine, red	10
621	Pine, red	11
622	Pine, red	10
623	Pine, red	12
624	Pine, red	9
625	Pine, red	12
626	Pine, red	11
627	Pine, red	9
628	Pine, red	11
629	Pine, red	11
630	Pine, red	11
631	Pine, red	11
632	Pine, red	12
633	Pine, red	8
634	Pine, red	13
635	Pine, red	9
636	Pine, red	15
637	Pine, red	12
638	Pine, red	13
645	Pine, red	16
646	Pine, red	13
651	Pine, red	11
652	Pine, red	15
653	Pine, red	13
654	Pine, red	11
655	Pine, red	11
656	Pine, red	10
657	Pine, red	10
658	Pine, red	10
659	Pine, red	10
660	Pine, red	9
661	Pine, red	11
662	Pine, red	12
663	Pine, red	13
664	Pine, red	15
665	Pine, red	13
666	Pine, red	11
667	Pine, red	12
668	Pine, red	10
669	Pine, red	9
670	Pine, red	12
671	Pine, red	16

672	Pine, red	15
675	Pine, red	11
677	Pine, red	17
678	Pine, red	12
679	Pine, red	12
680	Pine, red	11
682	Pine, red	10
683	Pine, red	12
684	Pine, red	8
685	Pine, red	13
689	Pine, red	12
690	Pine, red	12
691	Pine, red	14
692	Pine, red	13
693	Pine, red	13
694	Pine, red	15
695	Pine, red	12
696	Pine, red	14
697	Pine, red	14
698	Pine, red	16
699	Pine, red	12
700	Pine, red	17
701	Pine, red	10
702	Pine, red	16
703	Pine, red	14
704	Pine, red	13
705	Pine, red	8
706	Pine, red	12
707	Pine, red	12
708	Pine, red	10
709	Pine, red	9
710	Pine, red	10
711	Pine, red	16
712	Pine, red	12
713	Pine, red	10
714	Pine, red	13
715	Pine, red	9
716	Pine, red	9
717	Pine, red	11
718	Pine, red	14
719	Pine, red	11
720	Pine, red	13
721	Pine, red	13
722	Pine, red	7
723	Pine, red	12
724	Pine, red	12
725	Pine, red	11
726	Pine, red	13
727	Pine, red	14
728	Pine, red	14
729	Pine, red	13
730	Pine, red	11
731	Pine, red	14
732	Pine, red	8
733	Pine, red	10
734	Pine, red	12
735	Pine, red	15
736	Pine, red	17
737	Pine, red	11
738	Pine, red	15
739	Pine, red	9
740	Pine, red	6
741	Pine, red	12
742	Pine, red	15
743	Pine, red	16
744	Pine, red	13
745	Pine, red	11
746	Pine, red	10
747	Pine, red	20
748	Pine, red	17
749	Pine, red	16
750	Pine, red	14
751	Pine, red	15
752	Pine, red	20
754	Pine, red	8
755	Pine, red	9
756	Pine, red	12
757	Pine, red	11
758	Pine, red	10
759	Pine, red	12
760	Pine, red	13
761	Pine, red	16
764	Pine, red	11
765	Pine, red	10
766	Pine, red	13
767	Pine, red	12
770	Pine, red	12
773	Pine, red	11
774	Pine, red	13
775	Pine, red	19
776	Pine, red	15
777	Pine, red	14
778	Pine, red	14
779	Pine, red	18
780	Pine, red	23
781	Pine, red	12

782	Cedar, red	9
783	Pine, red	14
784	Pine, red	16
785	Pine, red	16
786	Pine, red	9
787	Pine, red	14
788	Pine, red	10
792	Pine, red	14
793	Pine, red	26
794	Cedar, red	7
795	Pine, red	17
796	Pine, red	18
797	Pine, red	12
798	Pine, red	20
799	Pine, red	11
800	Pine, red	16
801	Pine, red	17
802	Pine, red	14
803	Pine, red	14
804	Pine, red	14
805	Pine, red	13
806	Pine, red	15
807	Pine, red	10
808	Pine, red	12
809	Pine, red	8
810	Pine, red	10
811	Pine, red	15
812	Pine, red	13
813	Pine, red	14
814	Pine, red	11
815	Pine, red	11
816	Pine, red	10
817	Pine, red	13
818	Pine, red	12
819	Pine, red	15
820	Pine, red	16
821	Pine, red	14
822	Pine, red	19
823	Pine, red	16
824	Pine, red	19
825	Pine, red	14
826	Pine, red	19
827	Cedar, red	8
828	Pine, red	16
829	Pine, red	16
830	Pine, red	18
831	Pine, red	12
832	Pine, red	14
833	Pine, red	15
834	Pine, red	14
835	Pine, red	15
836	Pine, red	11
837	Pine, red	14
838	Pine, red	9
839	Pine, red	14
840	Pine, red	16
841	Pine, red	9
842	Pine, red	9
843	Pine, red	15
844	Pine, red	12
845	Pine, red	10
846	Pine, red	8
847	Pine, red	13
848	Pine, red	11
849	Pine, red	19
850	Pine, red	14
851	Pine, red	16
852	Pine, red	11
853	Pine, red	15
854	Pine, red	13
855	Pine, red	14
856	Pine, red	15
857	Pine, red	12
858	Pine, red	16
859	Pine, red	14
860	Cedar, red	6
861	Pine, red	12
862	Pine, red	13
863	Pine, red	15
864	Pine, red	11
865	Cedar, red	7
866	Pine, red	13
867	Pine, red	14
868	Pine, red	12
869	Pine, red	10
870	Pine, red	16
871	Pine, red	7
872	Pine, red	13
873	Pine, red	14
874	Pine, red	11
875	Pine, red	12
876	Pine, red	13
877	Pine, red	13
878	Pine, red	11
879	Pine, red	14
880	Pine, red	18

881	Pine, red	12
882	Pine, red	12
883	Pine, red	9
884	Pine, red	13
885	Oak, red	21
886	Oak, bur	16
887	Basswood	12
888	Aspen	13
889	Aspen	8
890	Aspen	13
891	Ash, green	23
892	Aspen	10
893	Oak, red	17
894	Aspen	9
895	Aspen	10
896	Aspen	8
897	Aspen	12
898	Aspen	10
899	Aspen	8
900	Aspen	13
901	Aspen	10
902	Aspen	9
903	Aspen	13
904	Aspen	8
905	Aspen	10
906	Aspen	14
907	Aspen	13
908	Oak, red	16
909	Aspen	9
910	Aspen	9
911	Aspen	11
912	Aspen	13
913	Cherry, black	16
914	Aspen	9
915	Aspen	18
916	Ash, green	14
917	Basswood	8
918	Basswood	8
919	Aspen	13
920	Aspen	10
921	Aspen	11
922	Aspen	9
923	Aspen	14
924	Aspen	12
925	Aspen	8
926	Aspen	8
927	Ash, green	9
928	Aspen	8
929	Aspen	9
930	Aspen	9
931	Aspen	10
932	Aspen	8
933	Oak, red	19
934	Aspen	9
935	Aspen	8
936	Aspen	9
937	Oak, red	8
938	Oak, red	12
939	Ash, green	12
940	Oak, red	8
941	Oak, bur	7
942	Oak, red	7
943	Oak, red	6
944	Oak, bur	6
945	Oak, bur	5
946	Oak, red	4
947	Oak, bur	5
948	Oak, red	7
949	Oak, red	7
950	Oak, red	7
951	Ash, green	13
952	Oak, red	14
953	Oak, red	12
954	Aspen	9
955	Oak, red	8
956	Aspen	9
957	Aspen	11
958	Aspen	8
959	Aspen	8
960	Aspen	12
961	Aspen	12
962	Oak, red	7
963	Aspen	14
964	Oak, red	25
965	Oak, bur	7
966	Oak, red	33
967	Oak, red	22
968	Oak, bur	15
969	Oak, red	12
970	Oak, red	22
971	Oak, red	24
972	Oak, red	18
973	Oak, red	17
974	Oak, red	50
975	Oak, red	15
976	Oak, bur	16
977	Oak, bur	7
978	Basswood	10
979	Oak, red	5
980	Oak, red	12
981	Oak, red	5

982	Oak, red	7
983	Oak, red	16
984	Oak, red	20
985	Oak, red	20
986	Oak, red	17
987	Oak, red	15
988	Oak, red	16
989	Oak, red	15
990	Oak, red	13
991	Oak, red	14
992	Oak, red	14
993	Oak, red	24
994	Oak, white	17
995	Basswood	8
996	Oak, red	28
997	Oak, red	40
998	Oak, red	6
999	Cedar, red	13
1000	Oak, red	10
1001	Oak, red	38
1002	Cedar, red	8
1003	Basswood	18
1004	Basswood	13
1005	Basswood	9
1006	Ash, green	10
1007	Oak, red	21
1008	Oak, red	14
1009	Ash, green	15
1010	Oak, red	9
1011	Oak, red	24
		<b>10564</b>

TREES REMOVED HOME CONST

54	Pine, red	15
55	Pine, red	13
56	Pine, red	12
59	Pine, red	20
60	Pine, red	12
61	Pine, red	7
62	Pine, red	12
63	Pine, red	11
76	Pine, red	12
77	Pine, red	14
78	Pine, red	14
79	Pine, red	12
80	Pine, red	13
97	Pine, red	21
107	Pine, red	15
108	Pine, red	18
109	Cedar, red	7
110	Pine, red	13
134	Pine, red	15
135	Pine, red	15
136	Pine, red	15
139	Pine, red	13
158	Pine, red	12
159	Pine, red	13
160	Pine, red	13
161	Pine, red	13
162	Pine, red	14
170	Pine, red	12
174	Pine, red	8
175	Pine, red	10
176		