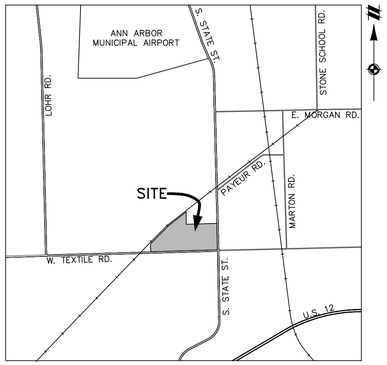
FINAL SITE PLAN

INGLEWOOD PARK

A MIXED USE PLANNED UNIT DEVELOPMENT

PITTSFIELD TOWNSHIP, SECTIONS 20 & 21

WASHTENAW COUNTY, MICHIGAN



VICINITY MAP
NOT TO SCALE

DEVELOPMENT TEAM

PROPERTY OWNER
PITTSFIELD PROPERY, LLC
C/O THOMAS LABRET
2669 GRATIOT AVE
DETROIT, MI 48207

APPLICANT / DEVELOPER
SCHAFER DEVELOPMENT, LLC
29800 MIDDLEBELT RD, SUITE 150
FARMINGTON HILLS, MI 48334
PHONE: (248) 613-6262
FAX: (248) 932-0128

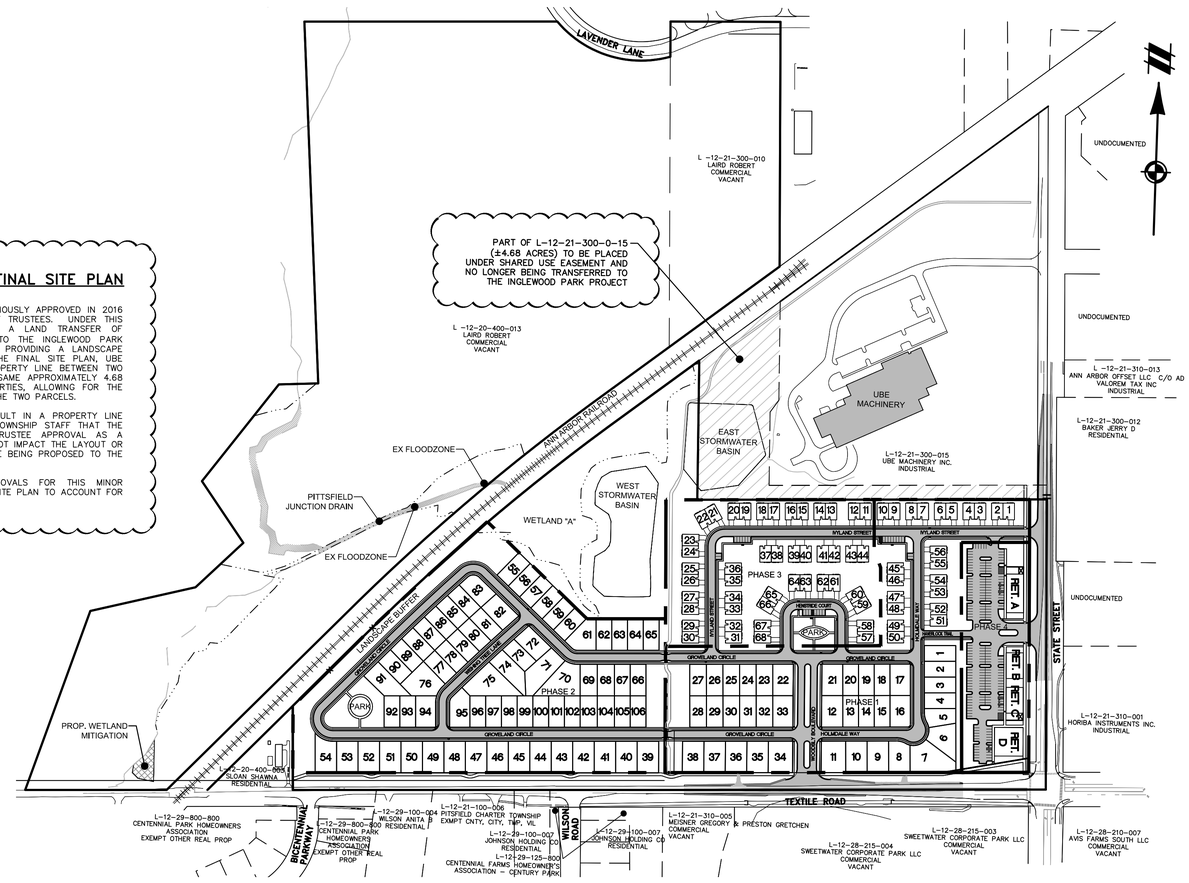
CIVIL ENGINEER
ATWELL, LLC
311 N. MAIN ST.
ANN ARBOR, MI 48104
PHONE: (734) 994-4000
FAX: (734) 994-1590
CONTACT: MATT BUSH

MINOR MODIFICATION TO THE APPROVED FINAL SITE PLAN

THE FINAL SITE PLAN FOR THE INGLEWOOD PARK PROJECT WAS PREVIOUSLY APPROVED IN 2016 BY THE PITTSFIELD TOWNSHIP PLANNING COMMISSION AND BOARD OF TRUSTEES. UNDER THIS FINAL SITE PLAN APPROVAL, UBE MACHINERY WAS TO PROVIDE A LAND TRANSFER OF APPROXIMATELY 4.68 ACRES (A PORTION OF L-12-21-300-015) TO THE INGLEWOOD PARK PROJECT FOR THE PURPOSES OF STORM WATER MANAGEMENT AND PROVIDING A LANDSCAPE BUFFER BETWEEN THE TWO PARCELS. SINCE THE APPROVAL OF THE FINAL SITE PLAN, UBE MACHINERY HAS REQUESTED TO REVERT BACK TO THE ORIGINAL PROPERTY LINE BETWEEN TWO PARCELS AND INSTEAD PROVIDE A SHARED USE EASEMENT OF THE SAME APPROXIMATELY 4.68 ACRES BETWEEN THE INGLEWOOD PARK AND UBE MACHINERY PROPERTIES, ALLOWING FOR THE STORM WATER MANAGEMENT AND LANDSCAPE BUFFER USES BETWEEN THE TWO PARCELS.

AS THIS MINOR MODIFICATION TO THE FINAL SITE PLAN WOULD RESULT IN A PROPERTY LINE CHANGE FROM THE PREVIOUS APPROVALS, IT WAS DETERMINED BY TOWNSHIP STAFF THAT THE PLANS SHOULD OBTAIN PLANNING COMMISSION AND BOARD OF TRUSTEE APPROVAL AS A TECHNICALITY OF PROCEDURE. NOTE THAT THIS MODIFICATION DOES NOT IMPACT THE LAYOUT OR DESIGN OF THE INGLEWOOD PARK DEVELOPMENT AND NO CHANGES ARE BEING PROPOSED TO THE PREVIOUSLY APPROVED SITE LAYOUT AND DESIGN.

AS SUCH, THE DEVELOPER IS RESPECTFULLY REQUESTING APPROVALS FOR THIS MINOR MODIFICATION TO THE PREVIOUSLY APPROVED INGLEWOOD PARK FINAL SITE PLAN TO ACCOUNT FOR THIS PROPERTY LINE MODIFICATION.



DEVELOPMENT SUMMARY

- THE PROPOSED DEVELOPMENT CONSISTS OF:
  106 SINGLE FAMILY UNITS
  68 MULTI-FAMILY UNITS
  28,900 SF RETAIL
- REFUSE COLLECTION WILL BE CURB SIDE PICK UP SERVICE FOR RESIDENTIAL. DUMPSTERS ARE PROPOSED FOR THE RETAIL BUILDINGS ALONG STATE STREET.
- PROPOSED UTILITY SERVICES FOR THE DEVELOPMENT ARE AS FOLLOWS:

SANITARY SEWER
PUBLIC SANITARY SEWER IS PROPOSED FOR THIS DEVELOPMENT WITHIN PUBLIC EASEMENTS AND WILL BE SERVICED THROUGH THE EXISTING 21" WEST SIDE SANITARY SEWER WITHIN AN EASEMENT AS PART OF THE SITE.

WATER MAIN
PUBLIC WATER MAIN IS PROPOSED FOR THIS DEVELOPMENT WITHIN PUBLIC EASEMENTS AND WILL BE SUPPLIED THROUGH MULTIPLE CONNECTIONS TO THE EXISTING 16" WATER MAIN AND NEAR THE U.B.E. PROPERTY WITHIN AN EASEMENT AS PART OF THE SITE. AN EX. CONNECTION TO STATE RD. AND A HYDRANT SOUTH OF U.B.E. ARE TO BE ABANDONED.

STORM WATER MANAGEMENT
THE PROPOSED SITE DEVELOPMENT AREAS WILL BE COLLECTED INTO TWO STORMWATER MANAGEMENT BASIN SYSTEMS AND INFILTRATED, WITH ANY ADDITIONAL VOLUME OUTLETTED AT A RESTRICTED RATE TO THE EXISTING WETLANDS OR DRAINAGE DITCH. THE STORMWATER SYSTEM WILL BE DESIGNED PER THE WCWRC STANDARDS.

GAS, TELEPHONE, ELECTRIC AND CABLE
EXISTING FRANCHISE UTILITIES CURRENTLY SERVICING THE TOWNSHIP WILL BE EXTENDED TO SERVICE THE PROPOSED DEVELOPMENT.

ROADS
ALL ROADS WITHIN THE SITE ARE TO BE PRIVATE ROADS.

LEGAL DESCRIPTION

DESCRIPTION OF A 63.41 ACRE PARCEL LOCATED IN THE SOUTHEAST 1/4 OF SECTION 20 AND THE SOUTHWEST 1/4 OF SECTION 21, T3S, R6E, PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN

Begining at the Southeast corner of Section 20, T3S, R6E, Pittsfield Township, Washtenaw County, Michigan; thence S88°03'42"W 1297.65 feet along the centerline of Textile Road (120 feet wide) and the South line of said Section 20; thence N01°58'42"W 293.60 feet; thence along the Southeasterly line of Ann Arbor Railroad (100 feet wide) the following three (3) courses; N43°30'13"E 421.78 feet, 1049.48 feet along the arc of a 7509.26 foot radius circular curve to the right, having a chord bearing N47°46'28"E 1048.63 feet, and N51°58'28"E 745.71 feet; thence S01°07'56"E 345.03 feet; thence S34°34'56"W 51.39 feet; thence S01°07'56"E 256.29 feet; thence N88°00'01"E 970.60 feet; thence S01°43'44"E 1063.84 feet along the centerline of State Road (120 feet wide) and the East line of the West 1/2 of the Southwest 1/4 of Section 21, T3S, R6E, Pittsfield Township, Washtenaw County, Michigan; thence S87°59'52"W 1332.88 feet along the centerline of said Textile Road and the South line of said Section 21 to the Place of Beginning, being a part of the Southeast 1/4 of said Section 20 and the Southwest 1/4 of said Section 21, containing 63.41 acres of land, more or less, being subject to the rights of the public over the Southerly 60 feet thereof as occupied by said Textile Road and the Easterly 60 feet thereof as occupied by said State Road, and being subject to easements, conditions, restrictions and exceptions of record, if any.

SITE DATA

PARCEL DATA

PARCEL ID'S: L-12-21-300-016; L-12-20-400-004			
EXISTING SITE ZONING	PUD (PLANNED UNIT DEVELOPMENT) & B (BUSINESS)		
PROPOSED SITE ZONING	PUD (PLANNED UNIT DEVELOPMENT)		
EXISTING LAND USE	AGRICULTURAL		
PROPOSED LAND USE	MIXED USE OF SINGLE FAMILY, MULTI-FAMILY RESIDENTIAL, & RETAIL/RESTAURANT (WITH BUS STOP)		
SITE AREA (TOTAL SITE):			
GROSS AREA	±58.72 ACRES	2,557,843	SF
STATE STREET ROW	±2.44 ACRES	106,384	SF
TEXTILE ROAD ROW	±3.49 ACRES	151,839	SF
WETLANDS	±3.33 ACRES	145,133	SF
UTILITY EASEMENTS	±1.53 ACRES	66,697	SF
NET AREA	±47.93 ACRES	2,087,790	SF

PHASE DATA:

	PHASE 1	PHASE 2	PHASE 3	PHASE 4	TOTAL
SINGLE-FAMILY LOTS	38	68	0	0	**106**
MULTI-FAMILY UNITS	22	0	46	0	**68**
RETAIL BUILDINGS	0	0	0	4	**4**
TOTAL	**60**	**68**	**46**	**4**	

SINGLE FAMILY RESIDENTIAL:

GROSS AREA	±41.77 ACRES	1,819,488	SF
TEXTILE ROAD ROW	±3.18 ACRES	138,646	SF
WETLANDS	±3.33 ACRES	145,133	SF
UTILITY EASEMENTS	±1.14 ACRES	49,510	SF
NET SITE AREA	±34.12 ACRES	1,486,199	SF
55' X 110' LOTS	81		
75' X 110' LOTS	25		
TOTAL LOTS	106		
SETBACKS			
FRONT	20'		
REAR	30'		
SIDE	5' MIN/10' TOTAL		
LOT COVERAGE	44% MAX.		
DENSITY (LOTS/ACRE)	3.11		
IMPERVIOUS SURFACE	4.30 ACRES		
IMPERVIOUS SURFACE RATIO	12.60%		

MULTI-FAMILY RESIDENTIAL: (3-BEDROOM UNITS)

GROSS AREA	±12.80 ACRES	557,568	SF
STATE STREET ROW	±0.38 ACRES	16,639	SF
UTILITY EASEMENTS	±0.39 ACRES	17,130	SF
NET SITE AREA	±12.03 ACRES	524,027	SF
TOTAL UNITS	68		
SETBACKS			
FRONT	20'	SIDE TO SIDE (BLDG)	20' MIN.
REAR	12'	REAR TO REAR (BLDG)	40' MIN.
SIDE	10'	SIDE TO REAR (BLDG)	25' MIN.
MAXIMUM LOT COVERAGE	25%		
MAXIMUM BLDG HEIGHT	25' - 2 STORIES		
DENSITY (UNITS/ACRE)	5.65		
IMPERVIOUS SURFACE	2.11 ACRES		
IMPERVIOUS SURFACE RATIO	17.5%		

RETAIL:

GROSS AREA	±6.44 ACRES	280,565	SF
STATE STREET ROW	±2.06 ACRES	89,745	SF
TEXTILE ROAD ROW	±0.29 ACRES	12,802	SF
NET SITE AREA	±4.09 ACRES	178,018	SF
RETAIL A	8,100 SF		
RETAIL B	5,400 SF		
RETAIL C	5,400 SF		
RETAIL D	10,000 SF		
TOTAL FLOOR AREA	28,900 SF		
LOT COVERAGE	16.2%		
FLOOR AREA RATIO	0.16		
MAXIMUM BLDG HEIGHT	30'		
IMPERVIOUS SURFACE	2.59 ACRES	112,800	SF
IMPERVIOUS SURFACE RATIO	63.3%		

PARKING:

	REQUIRED	PROPOSED
TWO-FAMILY RESIDENTIAL	2 PER DWELLING	2 PER DWELLING
ADDITIONAL PARKING	–	25
ADA PARKING	1 (FOR FIRST 25)	2
VAN ACCESSIBLE PARKING	1 (MINIMUM)	2
	REQUIRED	PROPOSED
FAST FOOD RESTAURANT (COFFEE SHOP – 2,000 SF)	29 SPACES*	SEE TOTAL
CASUAL RESTAURANT (75 SEATS & 5,400 SF)	38 SPACES***	SEE TOTAL
RETAIL (21,500 SF)	86 SPACES****	SEE TOTAL
TOTAL	153 SPACES	194 SPACES

ADA PARKING REQUIREMENTS TO BE DETERMINED AND PROVIDED AT THE TIME OF RETAIL BUILDING USE DETERMINATION.

**1 SPACE PER 70 SF OF GROSS FLOOR AREA*
***1 SPACE PER 2 SEATS*
****1 SPACE PER 250 SF OF GROSS FLOOR AREA*

SHEET INDEX

01 COVER SHEET
02 OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN
03 EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 1
04 EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 2
05 EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 3
06 EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 4
07 EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 5
08 EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 6
09 EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 7
10 EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 8
10a EXISTING TREE SURVEY
11 OVERALL LAYOUT PLAN
12 LAYOUT PLAN – AREA 1
13 LAYOUT PLAN – AREA 2
14 LAYOUT PLAN – AREA 3
15 LAYOUT PLAN – AREA 4
16 LAYOUT PLAN – AREA 5
17 OVERALL UTILITIES PLAN
18 UTILITIES PLAN – AREA 1
19 UTILITIES PLAN – AREA 2
20 UTILITIES PLAN – AREA 3
21 UTILITIES PLAN – AREA 4
22 UTILITIES PLAN – AREA 5
23 GRADING AND EROSION CONTROL PLAN – AREA 1
24 GRADING AND EROSION CONTROL PLAN – AREA 2
25 GRADING AND EROSION CONTROL PLAN – AREA 3
26 GRADING AND EROSION CONTROL PLAN – AREA 4
26a GRADING AND EROSION CONTROL PLAN – AREA 4A
27 GRADING AND EROSION CONTROL PLAN – AREA 5
28 IVYLAND STREET PLAN AND PROFILE STA. 0+00 TO 10+00
29 IVYLAND STREET PLAN AND PROFILE STA. 10+00 TO 16+02
30 HOLMDALE WAY PLAN AND PROFILE STA. 7+00 TO 10+97
31 WOODSLY BOULEVARD PLAN AND PROFILE STA. 0+00 TO 4+29
32 HOLMDALE WAY PLAN AND PROFILE STA. 0+00 TO 7+27
33 HENSTRIDE COURT PLAN AND PROFILE STA. 0+00 TO 5+34
34 GROVELAND CIRCLE PLAN AND PROFILE STA. 0+00 TO 9+00
35 GROVELAND CIRCLE PLAN AND PROFILE STA. 8+50 TO 18+00
36 GROVELAND CIRCLE PLAN AND PROFILE STA. 17+50 TO 25+00
37 GROVELAND CIRCLE PLAN AND PROFILE STA. 25+00 TO 33+50
38 GROVELAND CIRCLE PLAN AND PROFILE STA. 33+00 TO 39+50
39 GROVELAND CIRCLE PLAN AND PROFILE STA. 39+50 TO 43+76
40 WISHING TREE LANE PLAN AND PROFILE STA. 0+00 TO 5+42
41 PLAN AND PROFILE – TEXTILE SAN EXTENSION & UBE WATER CONNECTION
42 COMMERCIAL WATERMAIN PLAN AND PROFILE
43 COMMERCIAL SANITARY SEWER PLAN AND PROFILE
44 WATERMAIN RECONSTRUCTION PROFILE
45 STORMWATER PLAN AND PROFILE R18–R1
46 STORMWATER PLAN AND PROFILE R14–R9
47 STORMWATER PLAN AND PROFILE R17–R14
48 STORMWATER PLAN AND PROFILE R25–R6
49 STORMWATER PLAN AND PROFILE R23–R27 R23–R59
50 STORMWATER PLAN AND PROFILE R36–R3
51 STORMWATER PLAN AND PROFILE R45–R36
52 STORMWATER PLAN AND PROFILE R55–R37 R38–R63 R66–R32
53 STORMWATER PLAN AND PROFILE R48–R46 R50–R44
54 STORMWATER PLAN AND PROFILE R104–R100
55 STORMWATER PLAN AND PROFILE R106–R104 R104–R154 R189–R153
56 STORMWATER PLAN AND PROFILE R106–R116
57 STORMWATER PLAN AND PROFILE R116–215 R117–144 R119–143 R200–119
58 STORMWATER PLAN AND PROFILE R154–R157 R156–R178 R180–R176
59 STORMWATER PLAN AND PROFILE R116–R123 R112–R128 R109–R142
60 STORMWATER PLAN AND PROFILE R105–R138
61 STORMWATER PLAN AND PROFILE R157–R164 R163–R197 R159–R175
62 STORMWATER PLAN AND PROFILE R168–R164 R164–R173
63 STORMWATER PLAN AND PROFILE R183A–R199 R154–R187
64 STORMWATER PLAN AND PROFILE R190–R195
65 STORMWATER WEST BASIN GRADING
66 STORMWATER EAST BASIN GRADING
67 STORMWATER CONVEYANCE CALCULATIONS
68 OVERALL DRAINAGE AREA PLAN
69 DRAINAGE AREA PLAN – AREA 1
70 DRAINAGE AREA PLAN – AREA 2
71 DRAINAGE AREA PLAN – AREA 3
72 DRAINAGE AREA PLAN – AREA 4
73 DRAINAGE AREA PLAN – AREA 5
74 FIRE PROTECTION PLAN WEST
75 FIRE PROTECTION PLAN EAST
76 STATE AND TEXTILE IMPROVEMENTS PLAN
77 STATE AND TEXTILE STRIPING PLAN
78 STATE ROAD GRADING PLAN
79 TEXTILE ROAD GRADING PLAN
80 STATE AND TEXTILE STORM PLAN AND PROFILE
81 STATE ROAD PEDESTRIAN CROSSING PLAN
82 STATE AND TEXTILE ROAD ROUNABOUT OVERLAY
83 SOIL EROSION AND SEDIMENT CONTROL PLAN
84 SOIL EROSION AND SEDIMENT CONTROL PLAN DETAILS
85 LANDSCAPING PLAN – AREA 1
86 LANDSCAPING PLAN – AREA 2
87 LANDSCAPING PLAN – AREA 3
88 LANDSCAPING PLAN – AREA 4
89 LANDSCAPING PLAN – AREA 5
90 STANDARD DETAILS
91 STANDARD DETAILS
91a STORM AND SANITARY STRUCTURE AND LEAD SCHEDULES
92 PITTSFIELD TOWNSHIP SOIL EROSION DETAILS AND NOTES
93 PITTSFIELD TOWNSHIP STORM SEWER DETAILS AND SPECIFICATIONS
94 PITTSFIELD TOWNSHIP WATER MAIN DETAILS
95 PITTSFIELD TOWNSHIP WATER MAIN SPECIFICATIONS
96 PITTSFIELD TOWNSHIP SANITARY SEWER DETAILS
97 PITTSFIELD TOWNSHIP SANITARY SEWER SPECIFICATIONS
98 PITTSFIELD TOWNSHIP EARTHWORK SPECIFICATIONS

INGLEWOOD PARK
CSPA 15-19

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

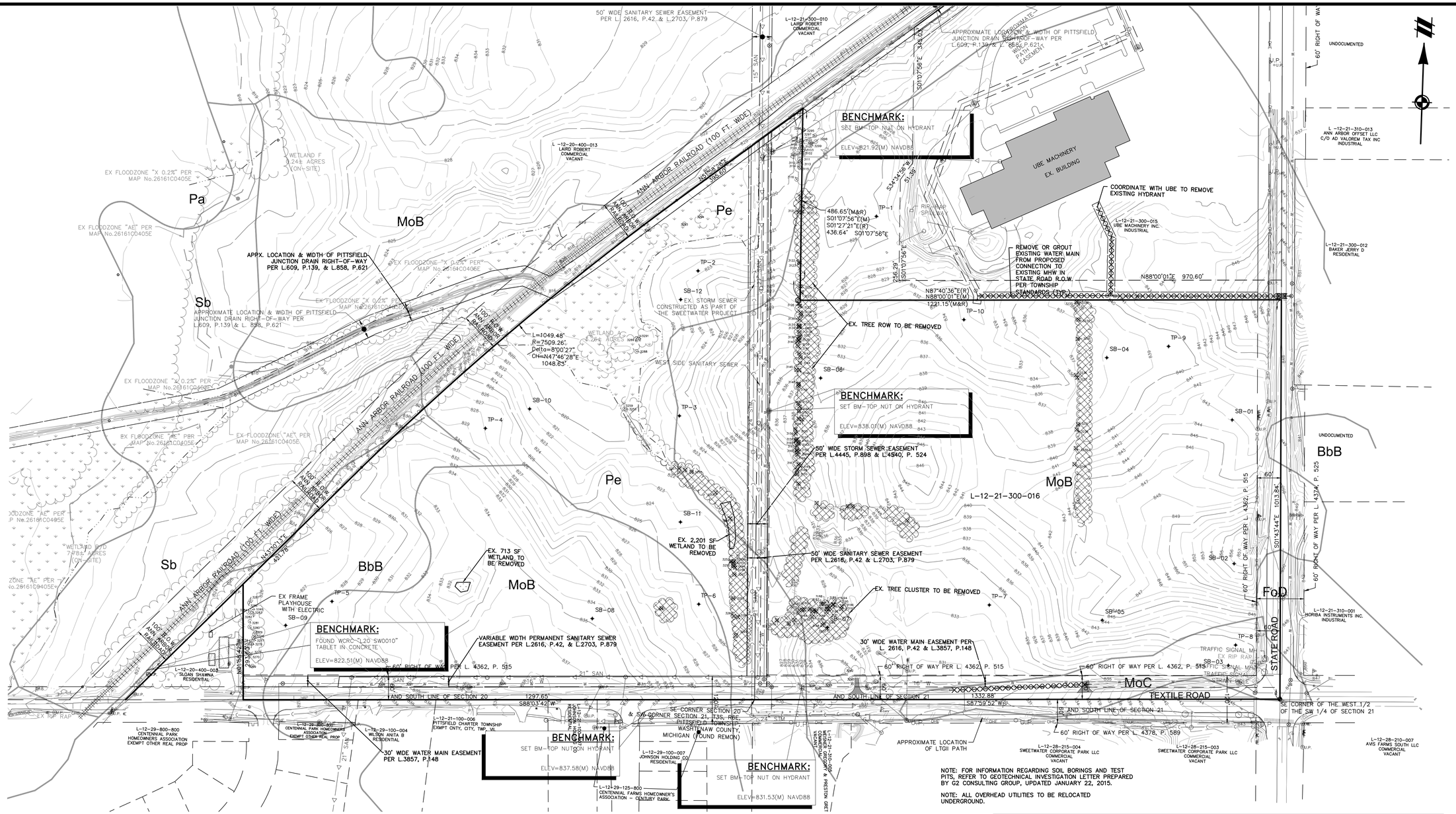
COVER SHEET

DATE
SEPTEMBER 13, 2016

REVISIONS
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

SCALE 0 125 250
1" = 250 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 01	



Map unit symbol	Map unit name	Rating	Rating reasons (1.00 being severe limitation)
BbB	Blount loam, 2 to 6 percent slopes	Very limited	Depth to saturated zone (1.00)
			Shrink-swell (0.50)
			Depth to saturated zone (1.00)
			Shrink-swell (0.50)
			Depth to saturated zone (1.00)
			Shrink-swell (0.50)
			Ponding (1.00)
			Depth to saturated zone (1.00)
			Shrink-swell (0.93)
FoD	Fox sandy loam, 12 to 18 percent slopes	Very limited	Slope (1.00)
			Slope (1.00)
			Depth to saturated zone (1.00)
			Slope (1.00)
			Slope (1.00)
			Large stones (0.11)
			Depth to saturated zone (1.00)
MoB	Morley loam, 2 to 6 percent slopes	Somewhat limited	Shrink-swell (0.42)
			Depth to saturated zone (0.35)
			Shrink-swell (0.07)

Map unit symbol	Map unit name	Rating	Rating reasons (1.00 being severe limitation)
MoC	Morley loam, 6 to 12 percent slopes	Somewhat limited	Shrink-swell (0.42)
			Slope (0.04)
			Slope (0.04)
			Shrink-swell (0.07)
			Slope (0.04)
MoD	Morley loam, 12 to 18 percent slopes	Very limited	Slope (1.00)
			Shrink-swell (0.42)
			Depth to saturated zone (1.00)
			Shrink-swell (1.00)
			Slope (1.00)
			Depth to saturated zone (1.00)
			Shrink-swell (0.50)
			Slope (1.00)
Pe	Pewamo clay loam	Very limited	Ponding (1.00)
			Depth to saturated zone (1.00)
			Shrink-swell (0.50)
			Ponding (1.00)
			Subsidence (1.00)
			Depth to saturated zone (1.00)
			Depth to saturated zone (1.00)
			Shrink-swell (0.50)
			Ponding (1.00)
			Depth to saturated zone (1.00)
			Depth to saturated zone (1.00)
			Ponding (1.00)
			Depth to saturated zone (1.00)
			Shrink-swell (1.00)

Map unit symbol	Depth to Water Table Rating	Flood Frequency	Ponding Frequency
BbB	23	none	none
FoD	>200	none	none
MdA	46	none	none
MoB	137	none	none
MoC	>200	none	none
MoD	>200	none	none
Pa	0	none	frequent
Pc	0	none	frequent
Pe	0	none	frequent
Sb	0	none	frequent
SpC	>200	none	none

LEGEND

EXISTING WETLAND LINE
EXISTING OVERHEAD ELECTRICAL LINE
EXISTING OVERHEAD TELEPHONE LINE
EXISTING FENCE
EXISTING CURB AND GUTTER
BOUNDARY LINE
EXISTING STORM
EXISTING TREE LINE
EXISTING VEGETATION TO BE REMOVED
EXISTING FLOOD ZONE
EXISTING EASEMENT
SECTION LINE
BOUNDARY/PROPERTY LINE
PROPOSED UTILITY DEMO
TEST PIT/SOIL BORING LOCATION
EXISTING 1' CONTOUR
EXISTING 5' CONTOUR
EXISTING WATER MAIN
EXISTING SANITARY
EXISTING GAS
EXISTING RAILROAD
EXISTING SIGN
EXISTING UTILITY POLE
EXISTING FIRE HYDRANT
EXISTING CABLE MARKER
EXISTING TELEPHONE RISER
SECTION CORNER
EXISTING SANITARY MANHOLE
EXISTING CATCH BASIN/INLET
EXISTING WATER MANHOLE
EXISTING WETLAND
EXISTING RIP-RAP
EXISTING SOIL TYPE BOUNDARY
MoB EXISTING SOIL TYPE

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN

DATE
SEPTEMBER 13, 2016

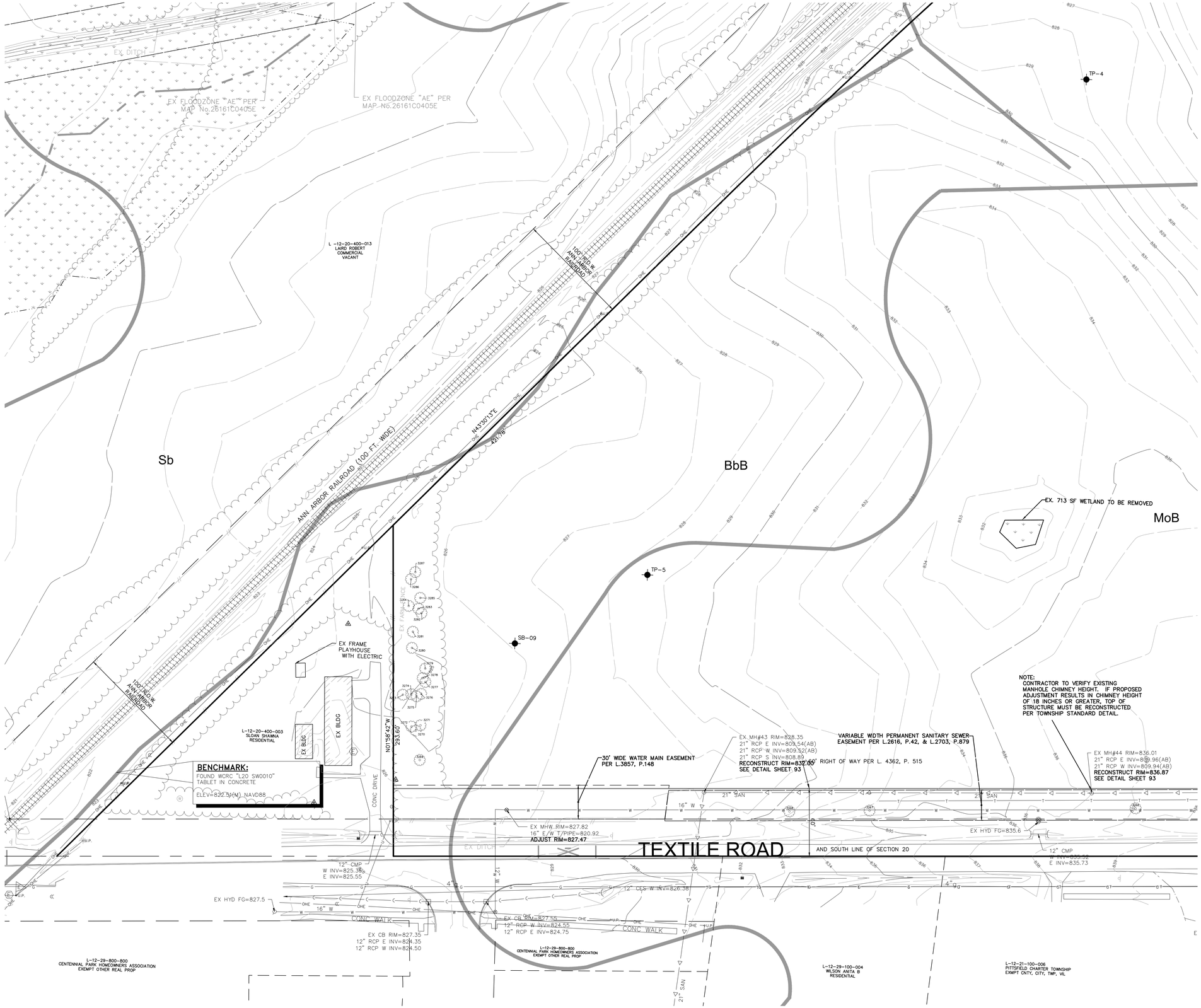
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

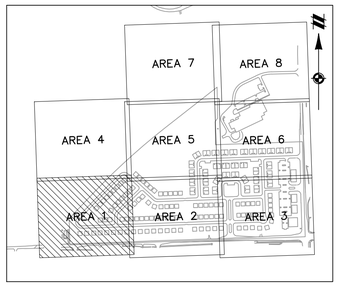
REVISIONS

SCALE 0 60 120
1" = 120 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 02	

SEE SHEET 06 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 4





KEYMAP
1" = 800'

SEE SHEET 04 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 2

NOTES:
FOR INFORMATION REGARDING SOIL BORINGS AND TEST PITS, REFER TO GEOTECHNICAL INVESTIGATION LETTER PREPARED BY G2 CONSULTING GROUP, UPDATED JANUARY 22, 2015.

(AB) = AS-BUILT INFORMATION AS PROVIDED BY TOWNSHIP ENGINEER IN LETTER DATED FEBRUARY 26, 2016.

ANY EXISTING OVERHEAD UTILITIES WILL BE RELOCATED UNDERGROUND.

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING TREE LINE
- EXISTING VEGETATION TO BE REMOVED
- EXISTING FLOOD ZONE
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING CONTOUR
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED UTILITY DEMO
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- EXISTING SOIL TYPE BOUNDARY
- MoB — EXISTING SOIL TYPE

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 1

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 03	

SEE SHEET 07 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 5

SEE SHEET 03 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 1

SEE SHEET 05 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 3

EX HYD FG=835.0

EX MH#48 RIM=834.21
21" RCP N INV=811.65(AB)
21" RCP S INV=811.59(AB)

BENCHMARK:
SET BM–TOP NUT ON HYDRANT
ELEV=848.01(M) NAVD88

r5
EX MHR RIM=828.99
24" RCP S INV=821.49
24" RCP N INV=821.43
ADJUST RIM=828.96
SEE DETAIL SHEET 93

WEST SIDE SANITARY SEWER

EX. STORM SEWER CONSTRUCTED AS PART OF THE SWEETWATER PROJECT

Pe

SB–11

50' WIDE STORM SEWER EASEMENT PER L.4445, P.898 & L.4540, P. 524

EX. 2,201 SF WETLAND TO BE REMOVED

EX MH#47 RIM=826.34
21" RCP N INV=811.17(AB)
21" RCP S INV=811.12(AB)
RECONSTRUCT RIM=829.70
SEE DETAIL SHEET 93

r4
EX MHR RIM=825.99
24" RCP S INV=822.14
24" RCP N INV=822.10
RECONSTRUCT RIM=827.63
SEE DETAIL SHEET 93

50' WIDE SANITARY SEWER EASEMENT PER L.2616, P.42 & L.2703, P.879

MoB

TP–6

SB–08

SB–07

EX. TREE CLUSTER TO BE REMOVED

NOTE:
CONTRACTOR TO VERIFY EXISTING MANHOLE CHIMNEY HEIGHT. IF PROPOSED ADJUSTMENT RESULTS IN CHIMNEY HEIGHT OF 18 INCHES OR GREATER, TOP OF STRUCTURE MUST BE RECONSTRUCTED PER TOWNSHIP STANDARD DETAIL.

VARIABLE WIDTH PERMANENT SANITARY SEWER EASEMENT PER L.2616, P.42, & L.2703, P.879

EX MH#45 RIM=830.85
21" RCP E INV=810.36(AB)
21" RCP W INV=810.32(AB)
8" PVC S INV=817.03
RECONSTRUCT RIM=833.44
SEE DETAIL SHEET 93

30' WIDE WATER MAIN EASEMENT PER L. 2616, P.42 & L.3857, P.148

EX MH#46 RIM=823.74
21" RCP N INV=810.39(AB)
21" RCP W INV=810.29(AB)
RECONSTRUCT RIM=827.01
SEE DETAIL SHEET 93

REMOVE EXISTING GRAVEL DRIVE

60' RIGHT OF WAY PER L. 4362, P.

EXISTING OVERHEAD UTILITIES TO BE REMOVED BY UTILITY COMPANY

BENCHMARK:
SET BM–TOP NUT ON HYDRANT
ELEV=831.53(M) NAVD88

21" SAN

16" W

EX MHW RIM=826.54
16" E/W T/PIPE=819.8
ADJUST RIM=827.29
SEE DETAIL SHEET 93

EX MHW RIM=826.8
16" N/S T/PIPE=819.9
ADJUST RIM=827.37
SEE DETAIL SHEET 93

EX MHW RIM=826.27
6" E/W T/PIPE=820.2
ADJUST RIM=826.86
SEE DETAIL SHEET 93

EX MHW RIM=825.86
12" N/S T/PIPE=819.5
RECONSTRUCT RIM=827.37
SEE DETAIL SHEET 93

EX HYD FG=829.3

AND SOUTH LINE OF SECTION 21

1297.65'

S88°03'42"W

TEXTILE ROAD

BITUMINOUS

L–12–21–125–800
CENTENNIAL FARMS HOMEOWNER'S ASSOCIATION – CENTURY PARK

SE CORNER SECTION 20 & SW CORNER SECTION 21, T3S, R6E, PITTSFIELD TOWNSHIP, WASHTENAW COUNTY, MICHIGAN (FOUND REMON)

24" STM

BIT WALK

LTGH PATH

CATV

EX MHS RIM=839.46

L–12–21–100–006
PITTSFIELD CHARTER TOWNSHIP
EXMPT CNTY, CITY, TWP, VIL

EX CB RIM=835.45
12" RCP S INV=833.05
6" EDGE DRAIN INV=833.85

L–12–21–100–007
JOHNSON HOLDING CO
RESIDENTIAL

EX MHS RIM=835.51
8" PVC S INV=818.36
8" PVC N INV=818.31
8" PVC W INV=825.01

BENCHMARK:
SET BM–TOP NUT ON HYDRANT
ELEV=837.58(M) NAVD88

L–12–29–100–007
JOHNSON HOLDING CO
RESIDENTIAL

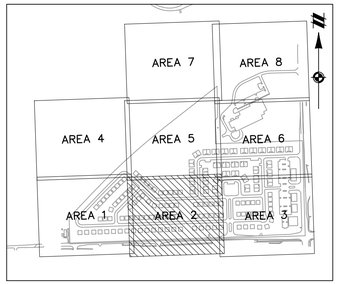
r3
EX. STM MH RIM=829.39
24" E INV 822.94
24" N INV 822.89

6" PVC LIDS OVER TILE DRAIN (TYP)

r2
EX CB RIM=827.92
24" RCP W INV=823.37
18" RCP SE INV=823.52

EX. STM CB RIM=827.96
24" W INV 823.31
24" SE INV 823.56

r1
EX OS RIM=826.02
18" NW INV=823.82



KEYMAP
1" = 800'

NOTES:
FOR INFORMATION REGARDING SOIL BORINGS AND TEST PITS, REFER TO GEOTECHNICAL INVESTIGATION LETTER PREPARED BY G2 CONSULTING GROUP, UPDATED JANUARY 22, 2015.

(AB) = AS–BUILT INFORMATION AS PROVIDED BY TOWNSHIP ENGINEER IN LETTER DATED FEBRUARY 26, 2016.

ANY EXISTING OVERHEAD UTILITIES WILL BE RELOCATED UNDERGROUND.

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING TREE LINE
- EXISTING VEGETATION TO BE REMOVED
- EXISTING FLOOD ZONE
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING CONTOUR
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED UTILITY DEMO
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP–RAP
- EXISTING SOIL TYPE BOUNDARY
- MoB — EXISTING SOIL TYPE

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 2

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM–SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM–SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

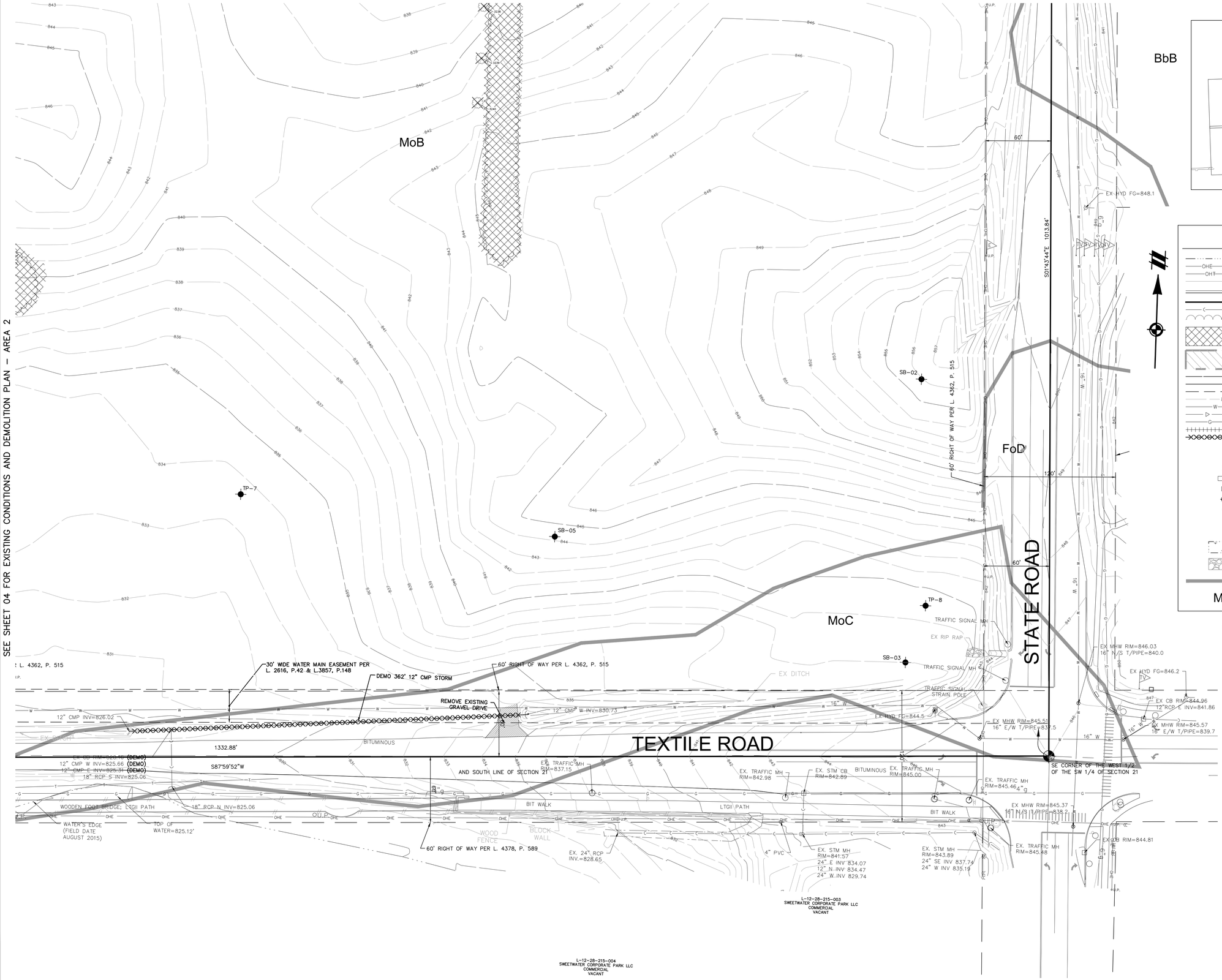
REVISIONS

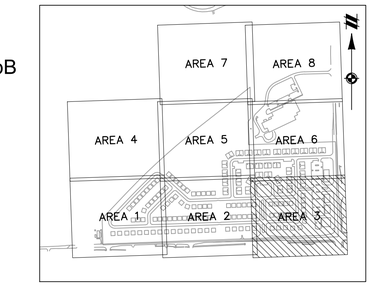
SCALE 0 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 04	

SEE SHEET 08 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 6

SEE SHEET 04 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 2





KEYMAP
1" = 800'

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING TREE LINE
- EXISTING VEGETATION TO BE REMOVED
- EXISTING FLOOD ZONE
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING CONTOUR
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED UTILITY DEMO
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- EXISTING SOIL TYPE BOUNDARY
- MoB — EXISTING SOIL TYPE

NOTES:
FOR INFORMATION REGARDING SOIL BORINGS AND TEST PITS, REFER TO GEOTECHNICAL INVESTIGATION LETTER PREPARED BY G2 CONSULTING GROUP, UPDATED JANUARY 22, 2015.

(AB) = AS-BUILT INFORMATION AS PROVIDED BY TOWNSHIP ENGINEER IN LETTER DATED FEBRUARY 26, 2016.

ANY EXISTING OVERHEAD UTILITIES WILL BE RELOCATED UNDERGROUND.

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 3

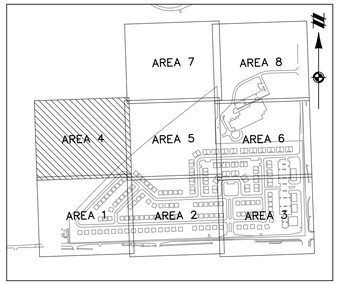
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBD

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 05	



KEYMAP
1" = 800'

NOTES:
FOR INFORMATION REGARDING SOIL BORINGS AND TEST PITS, REFER TO GEOTECHNICAL INVESTIGATION LETTER PREPARED BY G2 CONSULTING GROUP, UPDATED JANUARY 22, 2015.

(AB) = AS-BUILT INFORMATION AS PROVIDED BY TOWNSHIP ENGINEER IN LETTER DATED FEBRUARY 26, 2016.

ANY EXISTING OVERHEAD UTILITIES WILL BE RELOCATED UNDERGROUND.

LEGEND

- EXISTING WETLAND LINE
- OHE — EXISTING OVERHEAD ELECTRICAL LINE
- OHT — EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- C — EXISTING STORM
- EXISTING TREE LINE
- EXISTING VEGETATION TO BE REMOVED
- EXISTING FLOOD ZONE
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- 890 — EXISTING CONTOUR
- W — EXISTING WATER MAIN
- EXISTING SANITARY
- G — EXISTING GAS
- EXISTING RAILROAD
- PROPOSED UTILITY DEMO
- EXISTING SIGN
- U.P. — EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- CATV — EXISTING CABLE MARKER
- T — EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- EXISTING SOIL TYPE BOUNDARY
- MoB — EXISTING SOIL TYPE

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 4

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

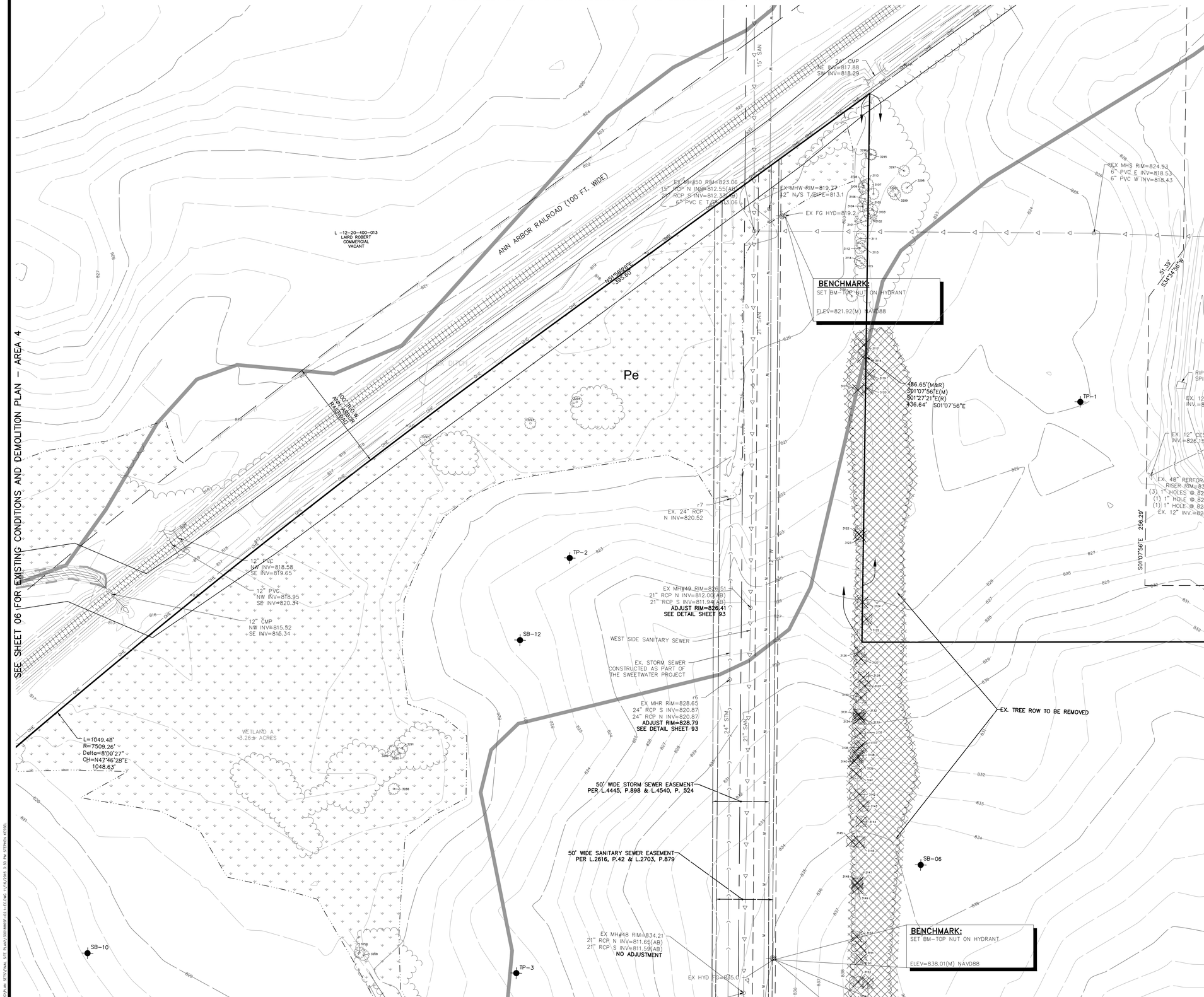
DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		
SHEET NO.	06		

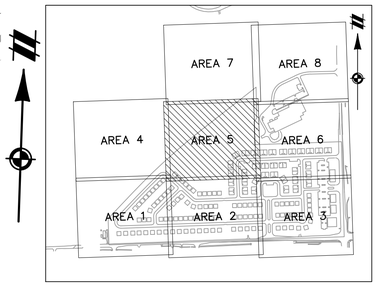
SEE SHEET 09 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 7

SEE SHEET 06 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 4

SEE SHEET 08 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 6

SEE SHEET 04 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 2





KEYMAP
1" = 800'

NOTES:
FOR INFORMATION REGARDING SOIL BORINGS AND TEST PITS, REFER TO GEOTECHNICAL INVESTIGATION LETTER PREPARED BY G2 CONSULTING GROUP, UPDATED JANUARY 22, 2015.

(AB) = AS-BUILT INFORMATION AS PROVIDED BY TOWNSHIP ENGINEER IN LETTER DATED FEBRUARY 26, 2016.

ANY EXISTING OVERHEAD UTILITIES WILL BE RELOCATED UNDERGROUND.

LEGEND

	EXISTING WETLAND LINE
OHE OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C C C	EXISTING STORM
	EXISTING TREE LINE
	EXISTING VEGETATION TO BE REMOVED
	EXISTING FLOOD ZONE
	EXISTING EASEMENT
	SECTION LINE
	BOUNDARY/PROPERTY LINE
890	EXISTING CONTOUR
W	EXISTING WATER MAIN
	EXISTING SANITARY
G G	EXISTING GAS
	EXISTING RAILROAD
	PROPOSED UTILITY DEMO
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	EXISTING SOIL TYPE BOUNDARY
MoB	EXISTING SOIL TYPE

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 5

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

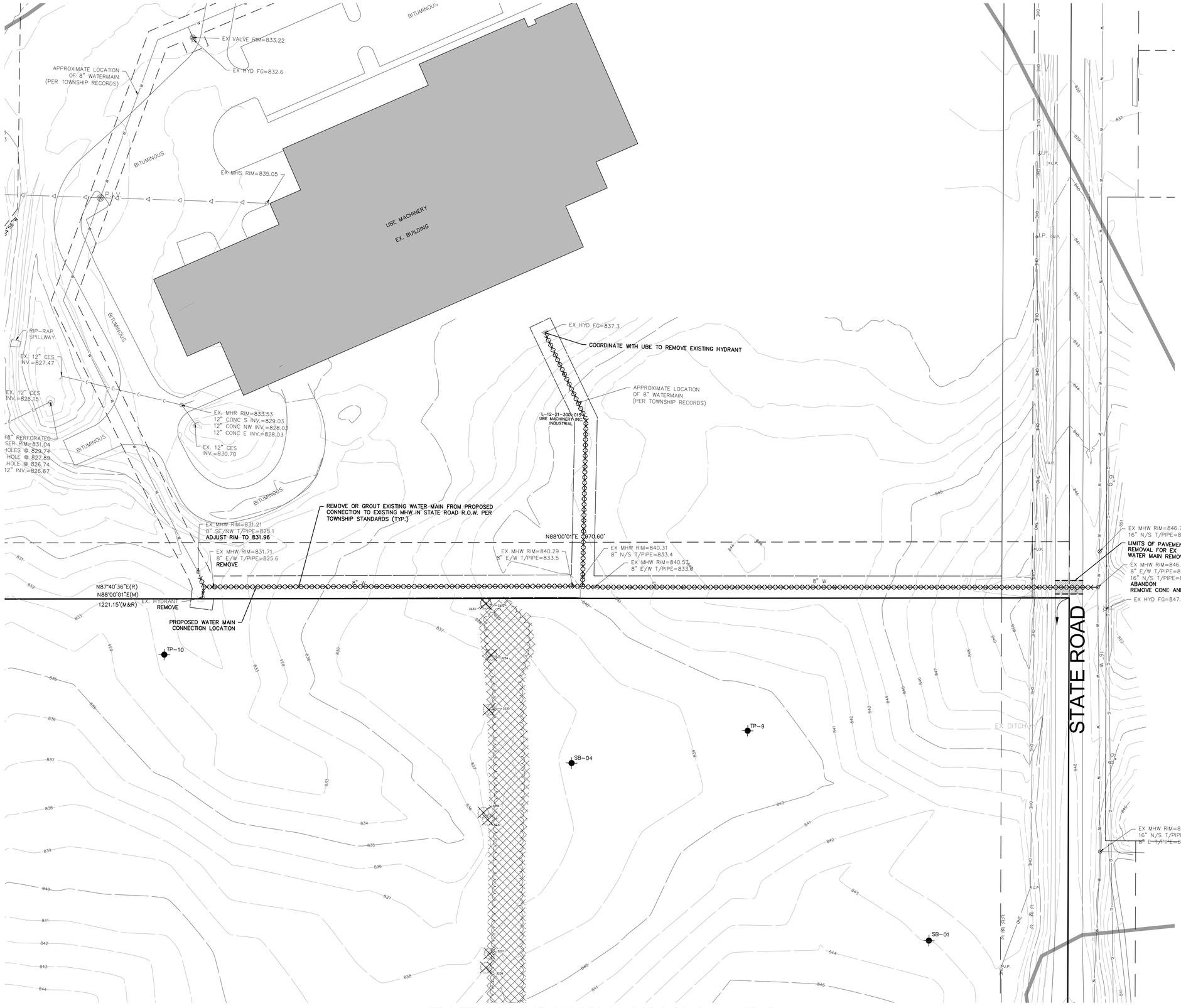
SCALE 0 20 40
1" = 40 FEET

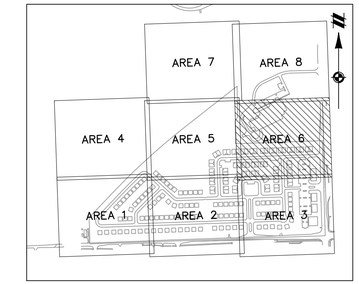
DR.	SK	CH. SS
P.M.	MB	
BOOK		
JOB	13001886.10	
SHEET NO.	07	

L:\13001886\DWG\PLAN SET\FINAL SITE PLAN\13001886SP-AD1-EC.DWG 11/16/2016 3:30 PM STEPHEN KOSSS

SEE SHEET 10 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 8

SEE SHEET 07 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 5





KEYMAP
1" = 800'

NOTES:
FOR INFORMATION REGARDING SOIL BORINGS AND TEST PITS, REFER TO GEOTECHNICAL INVESTIGATION LETTER PREPARED BY G2 CONSULTING GROUP, UPDATED JANUARY 22, 2015.

(AB) = AS-BUILT INFORMATION AS PROVIDED BY TOWNSHIP ENGINEER IN LETTER DATED FEBRUARY 26, 2016.

ANY EXISTING OVERHEAD UTILITIES WILL BE RELOCATED UNDERGROUND.

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING TREE LINE
- EXISTING VEGETATION TO BE REMOVED
- EXISTING FLOOD ZONE
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING CONTOUR
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED UTILITY DEMO
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- EXISTING SOIL TYPE BOUNDARY
- MoB — EXISTING SOIL TYPE

SEE SHEET 05 FOR EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 3

811
Know what's below.
Call before you dig.
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 6

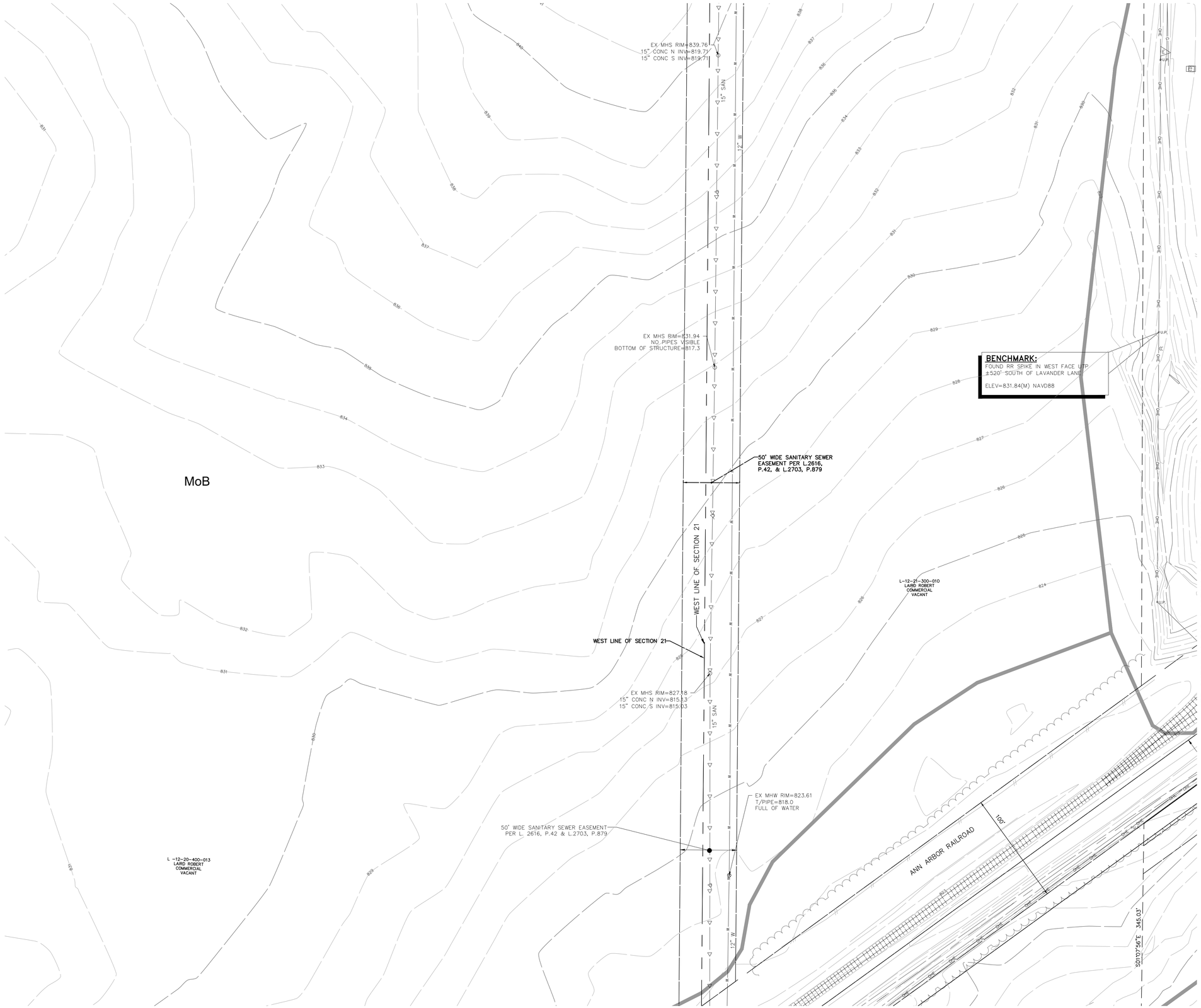
DATE
SEPTEMBER 13, 2016

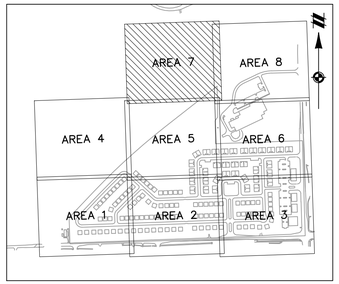
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 08	





KEYMAP
1" = 800'

NOTES:
FOR INFORMATION REGARDING SOIL BORINGS AND TEST PITS, REFER TO GEOTECHNICAL INVESTIGATION LETTER PREPARED BY G2 CONSULTING GROUP, UPDATED JANUARY 22, 2015.

(AB) = AS-BUILT INFORMATION AS PROVIDED BY TOWNSHIP ENGINEER IN LETTER DATED FEBRUARY 26, 2016.

ANY EXISTING OVERHEAD UTILITIES WILL BE RELOCATED UNDERGROUND.

LEGEND

- EXISTING WETLAND LINE
- OHE — EXISTING OVERHEAD ELECTRICAL LINE
- OHT — EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING TREE LINE
- EXISTING VEGETATION TO BE REMOVED
- EXISTING FLOOD ZONE
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- 890 — EXISTING CONTOUR
- W — EXISTING WATER MAIN
- EXISTING SANITARY
- G — EXISTING GAS
- EXISTING RAILROAD
- PROPOSED UTILITY DEMO
- EXISTING SIGN
- O.U.P. — EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- CATV — EXISTING CABLE MARKER
- T — EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- EXISTING SOIL TYPE BOUNDARY
- MoB — EXISTING SOIL TYPE

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 7

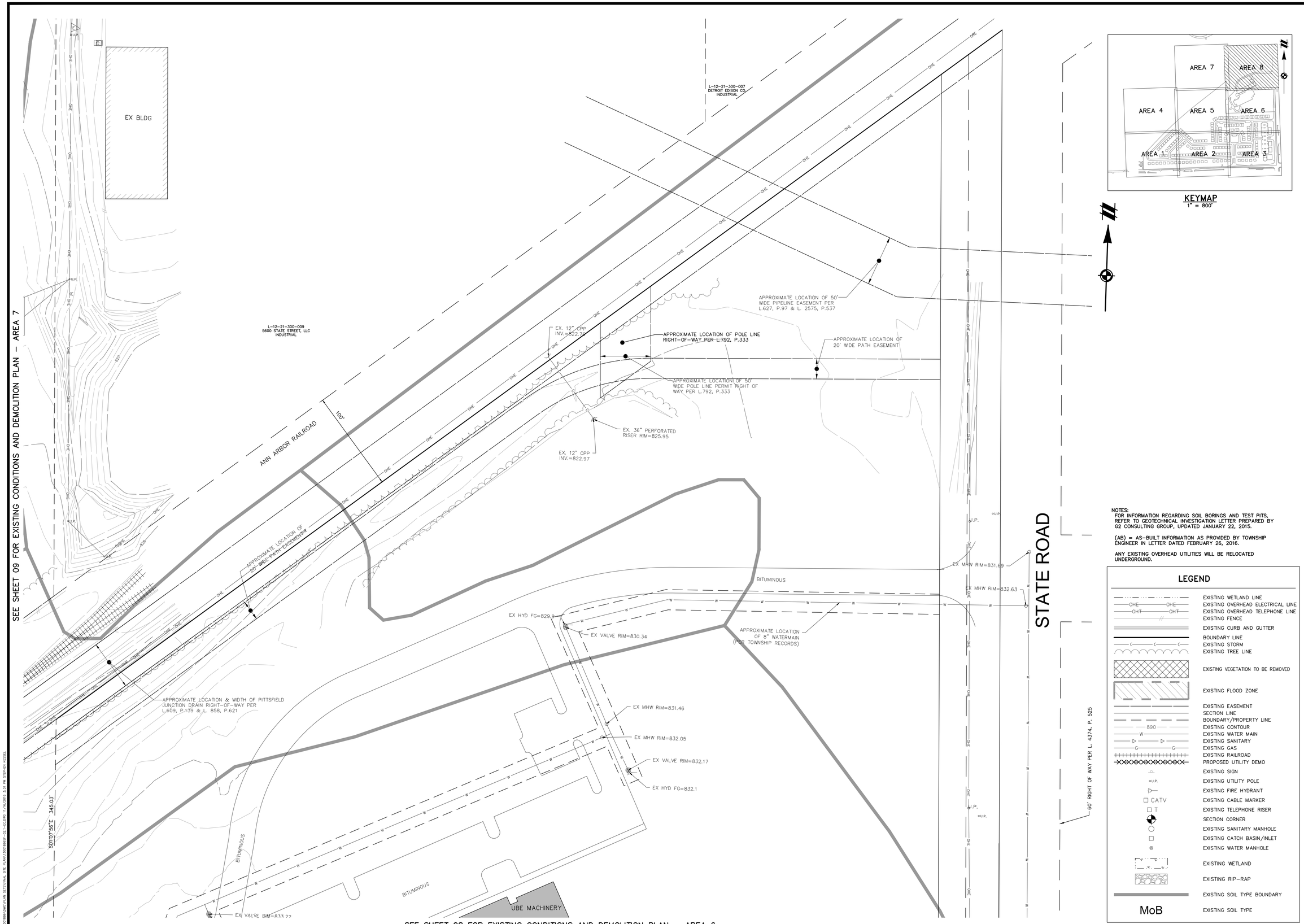
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 09	



NOTES:
FOR INFORMATION REGARDING SOIL BORINGS AND TEST PITS, REFER TO GEOTECHNICAL INVESTIGATION LETTER PREPARED BY G2 CONSULTING GROUP, UPDATED JANUARY 22, 2015.

(AB) = AS-BUILT INFORMATION AS PROVIDED BY TOWNSHIP ENGINEER IN LETTER DATED FEBRUARY 26, 2016.

ANY EXISTING OVERHEAD UTILITIES WILL BE RELOCATED UNDERGROUND.

LEGEND

	EXISTING WETLAND LINE
OHE OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C C C	EXISTING STORM
	EXISTING TREE LINE
	EXISTING VEGETATION TO BE REMOVED
	EXISTING FLOOD ZONE
	EXISTING EASEMENT
	SECTION LINE
	BOUNDARY/PROPERTY LINE
890	EXISTING CONTOUR
W	EXISTING WATER MAIN
	EXISTING SANITARY
G G	EXISTING GAS
	EXISTING RAILROAD
	PROPOSED UTILITY DEMO
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	EXISTING SOIL TYPE BOUNDARY
MoB	EXISTING SOIL TYPE

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

EXISTING CONDITIONS AND DEMOLITION PLAN – AREA 8

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 10	

Tree Survey Data Results for Inglewood in Pittsfield Township, Washtenaw County, Michigan (Atwell Project # 13001886)

	Northing	Easting	Tree Tag #	Data Code	Botanical Name	Common Name	Diameter (inches)	Condition	Heritage Tree	Comments
1	255954.799	13293806.12	3200	ACNE	*Acer negundo*	Box-Elder	23.0	Good	No	REMOVE; MITIGATE
2	255967.5	13293796.82	3199	ACNE	*Acer negundo*	Box-Elder	32.3	Fair	No	REMOVE; MITIGATE
3	255963.027	13293793.87	3198	ACNE	*Acer negundo*	Box-Elder	24.2	Good	No	REMOVE; MITIGATE
4	256005.399	13293839.74	3197	ACNE	*Acer negundo*	Box-Elder	6.1	Good	No	REMOVE; MITIGATE
5	256012.649	13293840.11	3196	ACNE	*Acer negundo*	Box-Elder	9.7	Good	No	REMOVE; MITIGATE
6	256016.207	13293819.92	3195	ACNE	*Acer negundo*	Box-Elder	6.4	Good	No	REMOVE; MITIGATE
7	256016.177	13293817.84	3194	ACNE	*Acer negundo*	Box-Elder	6.8	Good	No	REMOVE; MITIGATE
8	256007.484	13293811.24	3193	ACNE	*Acer negundo*	Box-Elder	7.1	Good	No	REMOVE; MITIGATE
9	256004.4	13293807.9	3192	ACNE	*Acer negundo*	Box-Elder	6.7	Good	No	REMOVE; MITIGATE
10	255996.613	13293802.6	3191	ACNE	*Acer negundo*	Box-Elder	7.7	Good	No	REMOVE; MITIGATE
11	256004.609	13293802.43	3190	ACNE	*Acer negundo*	Box-Elder	6.1	Good	No	REMOVE; MITIGATE
12	256011.472	13293806.16	3189	ACNE	*Acer negundo*	Box-Elder	8.1	Good	No	REMOVE; MITIGATE
13	256017.171	13293796.16	3188	ACNE	*Acer negundo*	Box-Elder	10.4	Good	No	2T; REMOVE; MITIGATE
14	256016.435	13293788.59	3187	ACNE	*Acer negundo*	Box-Elder	13.0	Good	No	2T; REMOVE; MITIGATE
15	255996.708	13293776.51	3186	ACNE	*Acer negundo*	Box-Elder	8.0	Good	No	REMOVE; MITIGATE
16	256000.353	13293771.03	3185	ACNE	*Acer negundo*	Box-Elder	8.7	Good	No	REMOVE; MITIGATE
17	255998.057	13293766.97	3184	ACNE	*Acer negundo*	Box-Elder	15.1	Fair	No	REMOVE; MITIGATE
18	256002.683	13293759.53	3183	ACNE	*Acer negundo*	Box-Elder	10.0	Fair	No	REMOVE; MITIGATE
19	256000.997	13293745.98	3182	ACNE	*Acer negundo*	Box-Elder	7.1	Good	No	2T; REMOVE; MITIGATE
20	255998.564	13293733.21	3181	ACNE	*Acer negundo*	Box-Elder	13.1	Good	No	REMOVE; MITIGATE
21	256000.288	13293741.49	3180	ACNE	*Acer negundo*	Box-Elder	6.3	Good	No	REMOVE; MITIGATE
22	255983.101	13293766.18	3179	MASP	*Malus sp.*	Apple/Crabapple	12.3	Poor	No	REMOVE; MITIGATE
23	255973.444	13293721.81	3178	RHCA	*Rhamnus cathartica*	Common Buckthorn	8.1	Poor	No	4T; REMOVE; MITIGATE
24	255963.572	13293708.19	3177	MASP	*Malus sp.*	Apple/Crabapple	12.4	Good	No	REMOVE; MITIGATE
25	255971.009	13293677.54	3176	ACSA	*Acer saccharum*	Sugar Maple	18.9	Good	Yes	4T; REMOVE; MITIGATE
26	256235.435	13293999.51	3175	QUAL	*Quercus alba*	White Oak	24	Fair	Yes	REMOVE; MITIGATE
27	256272.233	13293768.02	3174	RHCA	*Rhamnus cathartica*	Common Buckthorn	14.3	Good	No	3T; REMOVE; MITIGATE
28	256266.661	13293847.35	3173	PRSE	*Prunus serotina*	Black Cherry	10	Good	No	REMOVE; MITIGATE
29	256266.462	13293858.85	3172	RHCA	*Rhamnus cathartica*	Common Buckthorn	9.2	Good	No	3T; REMOVE; MITIGATE
30	256320.054	13293720.72	3171	PRSE	*Prunus serotina*	Black Cherry	17.3	Fair	No	REMOVE; MITIGATE
31	256344.156	13293716.46	3170	RHCA	*Rhamnus cathartica*	Common Buckthorn	7	Fair	No	REMOVE; MITIGATE
32	256364.261	13293723.33	3169	PRSE	*Prunus serotina*	Black Cherry	17.6	Fair	No	REMOVE; MITIGATE
33	256354.473	13293715.13	3168	PRSE	*Prunus serotina*	Black Cherry	15.5	Fair	No	REMOVE; MITIGATE
34	256368.992	13293719.04	3167	PRSE	*Prunus serotina*	Black Cherry	23.3	Good	Yes	REMOVE; MITIGATE
35	256392.922	13293714.97	3166	PRSE	*Prunus serotina*	Black Cherry	24.4	Fair	Yes	REMOVE; MITIGATE
36	256403.825	13293711.96	3165	PRSE	*Prunus serotina*	Black Cherry	14.6	Fair	No	REMOVE; MITIGATE
37	256400.537	13293717.83	3164	PRSE	*Prunus serotina*	Black Cherry	12.5	Good	No	REMOVE; MITIGATE
38	256404.314	13293714.22	3163	PRSE	*Prunus serotina*	Black Cherry	15.2	Good	No	2T; REMOVE; MITIGATE
39	256421.509	13293716.89	3162	PRSE	*Prunus serotina*	Black Cherry	9.5	Good	No	REMOVE; MITIGATE
40	256415.101	13293713.45	3161	PRSE	*Prunus serotina*	Black Cherry	15.4	Fair	No	REMOVE; MITIGATE
41	256427.203	13293710.22	3160	PRSE	*Prunus serotina*	Black Cherry	10.3	Good	No	REMOVE; MITIGATE
42	256425.519	13293716.53	3159	ULAM	*Ulmus americana*	American Elm	9.6	Good	No	REMOVE; MITIGATE
43	256430.819	13293710.43	3158	PRSE	*Prunus serotina*	Black Cherry	9.0	Good	No	REMOVE; MITIGATE
44	256431.938	13293713.49	3157	PRSE	*Prunus serotina*	Black Cherry	10.2	Good	No	REMOVE; MITIGATE
45	256447.03	13293708.82	3156	PRSE	*Prunus serotina*	Black Cherry	17.5	Good	No	REMOVE; MITIGATE
46	256457.785	13293707.79	3155	PRSE	*Prunus serotina*	Black Cherry	14.8	Good	No	REMOVE; MITIGATE
47	256483.273	13293724.25	3154	MASP	*Malus sp.*	Apple/Crabapple	9.7	Good	No	5T; REMOVE; MITIGATE
48	256484.045	13293715.85	3153	PRSE	*Prunus serotina*	Black Cherry	21.3	Good	Yes	REMOVE; MITIGATE
49	256504.383	13293717.41	3150	PRSE	*Prunus serotina*	Black Cherry	8.5	Fair	No	REMOVE; MITIGATE
50	256524.248	13293712.98	3152	PRSE	*Prunus serotina*	Black Cherry	6.5	Fair	No	REMOVE; MITIGATE
51	256515.268	13293716.79	3151	PRSE	*Prunus serotina*	Black Cherry	18.4	Good	Yes	REMOVE; MITIGATE
52	256566.85	13293712.57	3149	PRSE	*Prunus serotina*	Black Cherry	11.9	Fair	No	REMOVE; MITIGATE
53	256571.344	13293711.91	3148	PRSE	*Prunus serotina*	Black Cherry	11.8	Fair	No	REMOVE; MITIGATE
54	256572.247	13293711.94	3147	PRSE	*Prunus serotina*	Black Cherry	9.0	Fair	No	REMOVE; MITIGATE
55	256608.197	13293712.44	3146	PRSE	*Prunus serotina*	Black Cherry	7.8	Good	No	REMOVE; MITIGATE
56	256608.469	13293705.82	3145	ULAM	*Ulmus americana*	American Elm	7.5	Good	No	REMOVE; MITIGATE
57	256626.218	13293713.68	3144	PRSE	*Prunus serotina*	Black Cherry	15.0	Good	No	REMOVE; MITIGATE
58	256640.1	13293714.9	3143	PRSE	*Prunus serotina*	Black Cherry	16.3	Good	No	REMOVE; MITIGATE
59	256650.368	13293710.93	3142	PRSE	*Prunus serotina*	Black Cherry	11.4	Good	No	REMOVE; MITIGATE
60	256668.768	13293707.75	3141	PRSE	*Prunus serotina*	Black Cherry	10.0	Good	No	REMOVE; MITIGATE
61	256679.601	13293705.55	3140	ULAM	*Ulmus americana*	American Elm	22.7	Good	Yes	REMOVE; MITIGATE
62	256683.117	13293708.59	3139	PRSE	*Prunus serotina*	Black Cherry	9.2	Good	No	REMOVE; MITIGATE
63	256684.703	13293708.68	3138	PRSE	*Prunus serotina*	Black Cherry	8.0	Good	No	REMOVE; MITIGATE
64	256693.604	13293711.73	3137	PRSE	*Prunus serotina*	Black Cherry	16.0	Good	No	REMOVE; MITIGATE
65	256691.947	13293709.58	3136	PRSE	*Prunus serotina*	Black Cherry	8.2	Good	No	REMOVE; MITIGATE
66	256704.406	13293709.89	3135	PRSE	*Prunus serotina*	Black Cherry	10.4	Good	No	REMOVE; MITIGATE
67	256717.522	13293708.91	3134	PRSE	*Prunus serotina*	Black Cherry	14.5	Good	No	REMOVE; MITIGATE
68	256718.195	13293709.97	3133	PRSE	*Prunus serotina*	Black Cherry	8.5	Fair	No	REMOVE; MITIGATE
69	256721.161	13293708.24	3132	PRSE	*Prunus serotina*	Black Cherry	11.0	Good	No	REMOVE; MITIGATE
70	256720.964	13293707.92	3131	RHCA	*Rhamnus cathartica*	Common Buckthorn	6.6	Good	No	5 Trunks=5T; REMOVE; MITIGATE
71	256736.19	13293709.8	3130	PRSE	*Prunus serotina*	Black Cherry	11.1	Poor	No	3T (middle trunk dead); REMOVE; MITIGATE
72	256746.681	13293712.56	3129	PRSE	*Prunus serotina*	Black Cherry	7.1	Good	No	REMOVE; MITIGATE
73	256754.198	13293711.12	3128	PRSE	*Prunus serotina*	Black Cherry	7.9	Good	No	REMOVE; MITIGATE
74	256770.471	13293708.6	3127	MASP	*Malus sp.*	Apple/Crabapple	7.0	Poor	No	3T (biggest trunk split); REMOVE; MITIGATE
75	256776.721	13293706.77	3126	PRSE	*Prunus serotina*	Black Cherry	18.0	Fair	Yes	REMOVE; MITIGATE
76	256805.942	13293712.14	3125	PRSE	*Prunus serotina*	Black Cherry	33.9	Fair	Yes	4T; REMOVE; MITIGATE
77	256820.687	13293708.06	3124	PRSE	*Prunus serotina*	Black Cherry	7.8	Fair	No	REMOVE; MITIGATE
78	256879.095	13293704.42	3123	PRSE	*Prunus serotina*	Black Cherry	16.7	Good	No	REMOVE; MITIGATE
79	256881.031	13293702.99	3122	PRSE	*Prunus serotina*	Black Cherry	11.0	Poor	No	Inner Bark Rot, REMOVE; MITIGATE
80	257008.567	13293697.66	3121	PRSE	*Prunus serotina*	Black Cherry	19.5	Fair	Yes	2T; REMOVE; MITIGATE
81	257010.305	13293705.88	3120	PRSE	*Prunus serotina*	Black Cherry	11.8	Fair	No	2T; REMOVE; MITIGATE
82	257022.683	13293707.23	3119	PRSE	*Prunus serotina*	Black Cherry	12.1	Fair	No	REMOVE; MITIGATE
83	257038.075	13293701.27	3118	PRSE	*Prunus serotina*	Black Cherry	27.5	Fair	Yes	REMOVE; MITIGATE
84	257048.629	13293701.42	3117	PRSE	*Prunus serotina*	Black Cherry	6.6	Good	No	2T; REMOVE; MITIGATE

Tree Survey Data Results for Inglewood in Pittsfield Township, Washtenaw County, Michigan (Atwell Project # 13001886)

	Northing	Easting	Tree Tag #	Data Code	Botanical Name	Common Name	Diameter (inches)	Condition	Heritage Tree	Comments
85	257091.502	13293689.43	3116	ACNE	*Acer negundo*	Box-Elder	6.7	Good	No	2T
86	257121.087	13293696.99	3115	ACNE	*Acer negundo*	Box-Elder	21.3	Good	No	3T
87	257123.102	13293695.31	3114	CAOV	*Carya ovata*	Shagbark Hickory	7.2	Good	No	
88	257136.426	13293697.32	3113	ACNE	*Acer negundo*	Box-Elder	12.5	Fair	No	
89	257134.35	13293695.15	3112	ACNE	*Acer negundo*	Box-Elder	13.1	Good	No	
90	257143.006	13293695.46	3111	ACNE	*Acer negundo*	Box-Elder	13.2	Fair	No	
91	257191.436	13293700.24	3110	QUAL	*Quercus alba*	White Oak	7.1	Good	No	2T
92	257188.068	13293696.37	3109	QUAL	*Quercus alba*	White Oak	12.5	Fair	No	
93	257189.553	13293696.76	3108	QUAL	*Quercus alba*	White Oak	17.2	Good	Yes	
94	257182.805	13293705.46	3107	PRSE	*Prunus serotina*	Black Cherry	7.6	Good	No	2T
95	257178.067	13293698.21	3106	QUAL	*Quercus alba*	White Oak	9.2	Fair	No	
96	257172.095	13293700.75	3105	QUAL	*Quercus alba*	White Oak	19.1	Good	Yes	
97	257171.483	13293696.69	3104	QUAL	*Quercus alba*	White Oak	9.8	Fair	No	
98	257168.753	13293705	3103	QUAL	*Quercus alba*	White Oak	6.4	Good	No	
99	257165.54	13293701.99	3102	QUAL	*Quercus alba*	White Oak	11.5	Good	No	2T
100	257158.863	13293699.79	3101	QUAL	*Quercus alba*	White Oak	12.1	Good	No	
101	257185.697	13293722.74	3300	QUAL	*Quercus alba*	White Oak	13.3	Good	No	
102	257183.078	13293724.73	3299	QUAL	*Quercus alba*	White Oak	14.0	Good	No	2T
103	257189.271	13293734.92	3298	RHCA	*Rhamnus cathartica*	Common Buckthorn	7.5	Good	No	5T
104	257204.135	13293731.97	3297	PRSE	*Prunus serotina*	Black Cherry	10.9	Good	No	
105	257217.597	13293701.73	3296	QUAL	*Quercus alba*	White Oak	13.2	Good	No	
106	257217.743	13293702.43	3295	PRSE	*Prunus serotina*	Black Cherry	8.4	Poor	No	Dying
107	256989.592	13293448.96	3294	SANI	*Salix nigra*	Black Willow	18.0	Good	No	
108	256969.274	13293408.43	3293	SANI	*Salix nigra*	Black Willow	10.8	Good	No	
109	256951.075	13293315.79	3292	ULAM	*Ulmus americana*	American Elm	8.4	Good	No	
110	256677.444	13293304.69	3291	PODE	*Populus deltoides*	Cottonwood	7.3	Good	No	3T
111	256672.947	13293302.82	3290	PODE	*Populus deltoides*	Cottonwood	6.8	Poor	No	Inner Bark Rot
112	256674.342	13293296.67	3289	PODE	*Populus deltoides*	Cottonwood	8.5	Fair	No	2T
113	256641.209	13293298.49	3288	SANI	*Salix nigra*	Black Willow	6.8	Fair	No	
114	255976.49	13292341.69	3287	PIRE	*Pinus resinosa*	Red Pine	8.5	Good	No	
115	255970.164	13292338.13	3286	PIRE	*Pinus resinosa*	Red Pine	9.8	Good	No	
116	255953.792	13292346.83	3285	PIRE	*Pinus resinosa*	Red Pine	10.9	Good	No	
117	255946.293	13292336.84	3284	PIRE	*Pinus resinosa*	Red Pine	8.1	Good	No	
118	255944.155	13292345.61	3283	ACRU	*Acer rubrum*	Red Maple	8.1	Good	No	
119	255940.33	13292348.4	3282	PIRE	*Pinus resinosa*	Red Pine	8.4	Good	No	
120	255923.558	13292341.3	3281	PISP	*Picea sp.*	Spruce	8.5	Fair	No	
121	255909.25	13292341.01	3280	PISP	*Picea sp.*	Spruce	9.0	Good	No	
122	255891.303	13292353.39	3279	PODE	*Populus deltoides*	Cottonwood	10.4	Good	No	
123	255882.791	13292351.43	3278	PIRE	*Pinus resinosa*	Red Pine	8.4	Good	No	
124	255879.404	13292353.87	3277	ULAM	*Ulmus americana*	American Elm	8.2	Fair	No	
125	255868.715	13292350.57	3276	ACRU	*Acer rubrum*	Red Maple	8.2	Good	No	
126	255866.462	13292346.58	3275	ULAM	*Ulmus americana*	American Elm	6.5	Good	No	
127	255868.082	13292341.73	3274	PODE	*Populus deltoides*	Cottonwood	14.8	Good	No	
128	255867.425	13292334.35	3273	ULAM	*Ulmus americana*	American Elm	7.5	Fair	No	
129	255839.469	13292342.9	3272	PIRE	*Pinus resinosa*	Red Pine	11.5	Good	No	
130	255840.823	13292350.86	3271	ACRU	*Acer rubrum*	Red Maple	9.0	Good	No	
131	255835.996	13292346.82	3270	PIRE	*Pinus resinosa*	Red Pine	14.3	Good	No	
132	255810.033	13292351.21	3269	PISP	*Picea sp.*	Spruce	8.3	Good	No	
133	255775.591	13292680.36	3268	ACNE	*Acer negundo*	Box-Elder	8.0	Good	No	2T
134	255778.732	13292751.39	3267	MASP	*Malus sp.*	Apple/Crabapple	18.0	Good	Yes	
135	255788.703	13292987.01	3266	PRSE	*Prunus serotina*	Black Cherry	14.5	Good	No	
136	255928.693	13293574.68	3265	ACSA	*Acer saccharum*	Sugar Maple	8.0	Good	No	REMOVE; MITIGATE
137	255975.696	13293578.94	3264	PRSE	*Prunus serotina*	Black Cherry	25.5	Fair	Yes	Inner Bark Rot, REMOVE; MITIGATE
138	255978.798	13293568.41	3263	ACNE	*Acer negundo*	Box-Elder	10.2	Good	No	2T; REMOVE; MITIGATE
139	256023.439	13293564.76	3262	ULAM	*Ulmus americana*	American Elm	6.8	Fair	No	REMOVE; MITIGATE
140	256083.876	13293565.45	3261	QUAL	*Quercus alba*	White Oak	21.3	Good	Yes	REMOVE; MITIGATE
141	256225.737	13293550.68	3260	QUAL	*Quercus alba*	White Oak	19.6	Good	Yes	REMOVE; MITIGATE
142	256495.204	13293273.09	3259	ACSA	*Acer saccharum*	Sugar Maple	29.0	Excellent	Yes	
143	256493.069	13293276.67	3258	RHCA	*Rhamnus cathartica*	Common Buckthorn	12.8	Good	No	
144	256347.74	13293416.45	3257	PRSE	*Prunus serotina*	Black Cherry	20.0	Good	Yes	4T; REMOVE; MITIGATE
145	256345.328	13293431.84	3256	PRSE	*Prunus serotina*	Black Cherry	22.8	Good	Yes	3T; REMOVE; MITIGATE
146	256340.163	13293448.27	3255	PRSE	*Prunus serotina*	Black Cherry	22.6	Good	Yes	2T; REMOVE; MITIGATE
147	256290.145	13293510.93	3254	PRSE	*Prunus serotina*	Black Cherry	22.4	Good	Yes	REMOVE; MITIGATE
148	256117.149	13293564.08	3253	QUAL	*Quercus alba*	White Oak	17.8	Good	Yes	REMOVE; MITIGATE
149	256117.264	13293555.79	3252	QUAL	*Quercus alba*	White Oak	7.8	Good	No	2T; REMOVE; MITIGATE
150	256112.858	13293561.82	3251	QUAL	*Quercus alba*	White Oak	10.1	Good	No	REMOVE; MITIGATE
151	256106.663	13293561.48	3250	QUAL	*Quercus alba*	White Oak	13.3	Good	No	REMOVE; MITIGATE
152	256105.039	13293564.33	3249	QUAL	*Quercus alba*	White Oak	9.5	Good	No	REMOVE; MITIGATE
153	256101.621	13293567.17	3248	QUAL	*Quercus alba*	White Oak	17.6	Good	Yes	REMOVE; MITIGATE
154	255991.903	13293383.78	3247	CAGL	*Carya glabra*	Pignut Hickory	45.1	Good	Yes	REMOVE; MITIGATE
155	255809.773	13293772.73	3246	ACSA	*Acer saccharum*	Sugar Maple	28.7	Poor	Yes	
156	255803.417	13293787.35	3245	ACSA	*Acer saccharum*	Sugar Maple	22.7	Good	Yes	
157	255813.229	13293814.07	3244	ACSA	*Acer saccharum*	Sugar Maple	31.2	Good	Yes	
158	255829.363	13293869.66	3243	ACSA	*Acer saccharum*	Sugar Maple	21.0	Good	Yes	
159	255851.176	13293866.4	3242	ACSA	*Acer saccharum*	Sugar Maple	26.5	Good	Yes	
160	255823.738	13293933.72	3241	ACSA	*Acer saccharum*	Sugar Maple	33.5	Good	Yes	
161	256392.743	13294418.68	3240	ULAM	*Ulmus americana*	American Elm	8.0	Fair	No	REMOVE; MITIGATE
162	256433.457	13294420.7	3239	PRSE	*Prunus serotina*	Black Cherry	12.3	Fair	No	REMOVE; MITIGATE
163	256481.196	13294421.32	3238	PRSE	*Prunus serotina*	Black Cherry	18.6	Fair	Yes	REMOVE; MITIGATE
164	256612.808	13294418.48	3237	CEOC	*Celtis occidentalis*	Hackberry	6.4	Good	No	REMOVE; MITIGATE
165	256619.062	13294414.38	3236	PRSE	*Prunus serotina*	Black Cherry	17.8	Good	No	REMOVE; MITIGATE
166	256710.771	13294415.99	3235	PRSE	*Prunus serotina*	Black Cherry	21.0	Good	Yes	REMOVE; MITIGATE
167	256759.802	13294416.51	3234	PRSE	*Prunus serotina*	Black Cherry	35.0	Poor	Yes	Split in half/dying; REMOVE; MITIGATE
168	256804.949	13294410.13	3233	CEOC	*Celtis occidentalis*	Hackberry	6.7	Good	No	REMOVE; MITIGATE
169	256805.369	13294410.5	3232	PRSE	*Prunus serotina*	Black Cherry	18.6	Fair	Yes	REMOVE; MITIGATE
170	256493.856	13294424.23	3231	PRSE	*Prunus serotina*	Black Cherry	21.0	Fair	Yes	REMOVE; MITIGATE

NOTES: REFER TO LANDSCAPE PLANS (SHEETS 85–89) FOR PROPOSED PROJECT LANDSCAPING AND TREE MITIGATION.

PER PITTSFIELD TOWNSHIP ZONING ORDINANCE SECTION 14.08 F.1.a: WOODLAND TREES SIX (6) INCHES OR LARGER DBH SALL BE MITIGATED. THIS APPLIES TO ALL TREES BEING REMOVED ON THIS LIST.

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

EXISTING TREE SURVEY

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM–SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM–SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

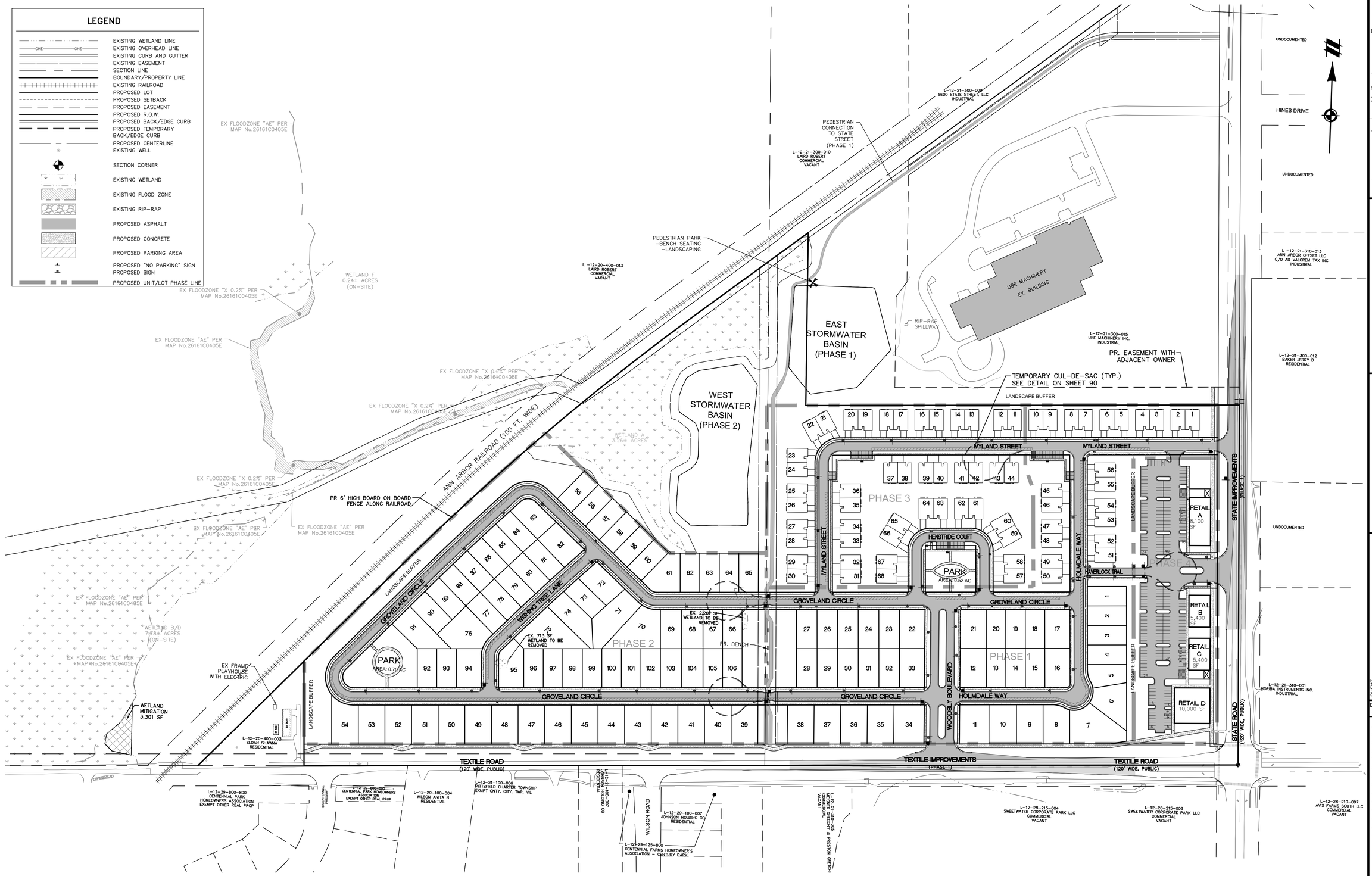
REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO.
10a

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD LINE
- EXISTING CURB AND GUTTER
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING RAILROAD
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED TEMPORARY BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- SECTION CORNER
- EXISTING WETLAND
- EXISTING FLOOD ZONE
- EXISTING RIP-RAP
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- PROPOSED PARKING AREA
- PROPOSED "NO PARKING" SIGN
- PROPOSED SIGN
- PROPOSED UNIT/LOT PHASE LINE



NOTE: ALL SIDEWALK AND PARKING AREAS MEET CURRENT ADA STANDARDS.

Wetland Area	Wetland Area (acres)	Township regulated?	MDEQ Regulated?	Impact Area (square feet)	Impact Volumes (cubic yards)
A	3.26	Yes	Yes	0	0
C	0.02	No	No	713	224 (FILL)
E	0.05	Yes	No	2201	367 (FILL)
Total	3.33			2914 (0.067-acres)	591 (FILL)

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

OVERALL LAYOUT PLAN

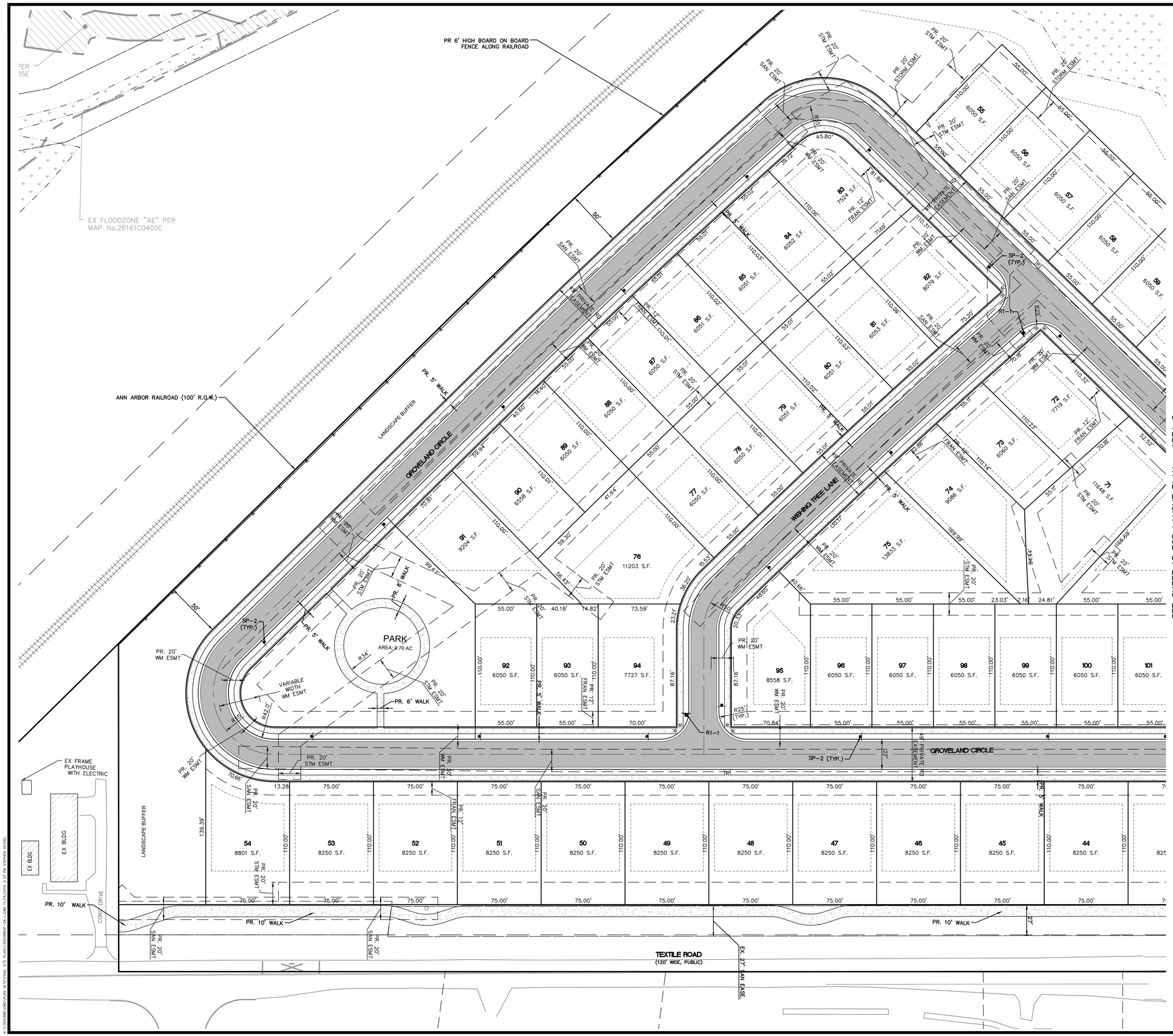
DATE
SEPTEMBER 13, 2016

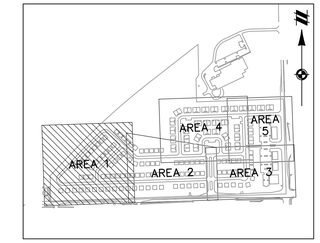
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

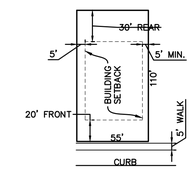
SCALE 0 60 120
1" = 120 FEET

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 11

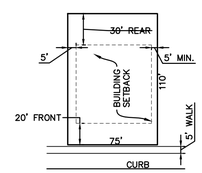




KEYMAP
1" = 800'



55' WIDE TYPICAL LOT DETAIL
NO SCALE



75' WIDE TYPICAL LOT DETAIL
NO SCALE

SEE SHEET 90 FOR TYPICAL ROAD SECTIONS

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD LINE
- EXISTING CURB AND GUTTER
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING RAILROAD
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- SECTION CORNER
- EXISTING WETLAND
- EXISTING FLOOD ZONE
- EXISTING RIP-RAP
- PROPOSED ASPHALT
- PROPOSED "NO PARKING" SIGN / FIRE LANE (DETAIL ON SHEET 90)
- PROPOSED SIGN (DETAIL ON SHEET 90)
- WETLAND BUFFER

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
511 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

LAYOUT PLAN – AREA 1

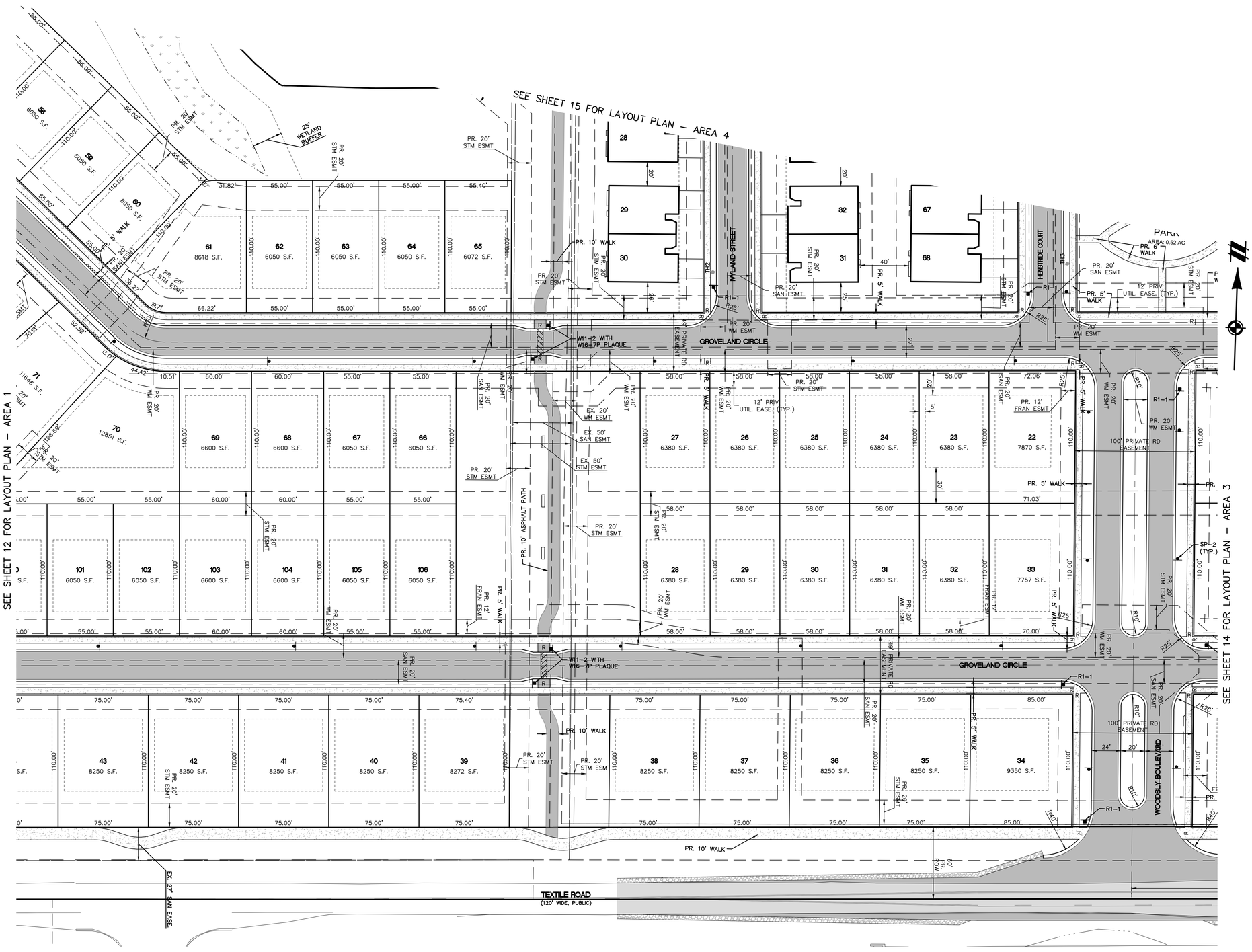
DATE
SEPTEMBER 13, 2016

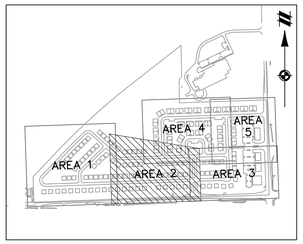
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		
SHEET NO.	12		





KEYMAP
1" = 800'

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD LINE
- EXISTING CURB AND GUTTER
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING RAILROAD
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- SECTION CORNER
- EXISTING WETLAND
- EXISTING FLOOD ZONE
- EXISTING RIP-RAP
- PROPOSED ASPHALT
- PROPOSED "NO PARKING" SIGN / FIRE LANE (DETAIL ON SHEET 90)
- PROPOSED SIGN (DETAIL ON SHEET 90)
- WETLAND BUFFER

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
511 AVIS DR.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

LAYOUT PLAN – AREA 2

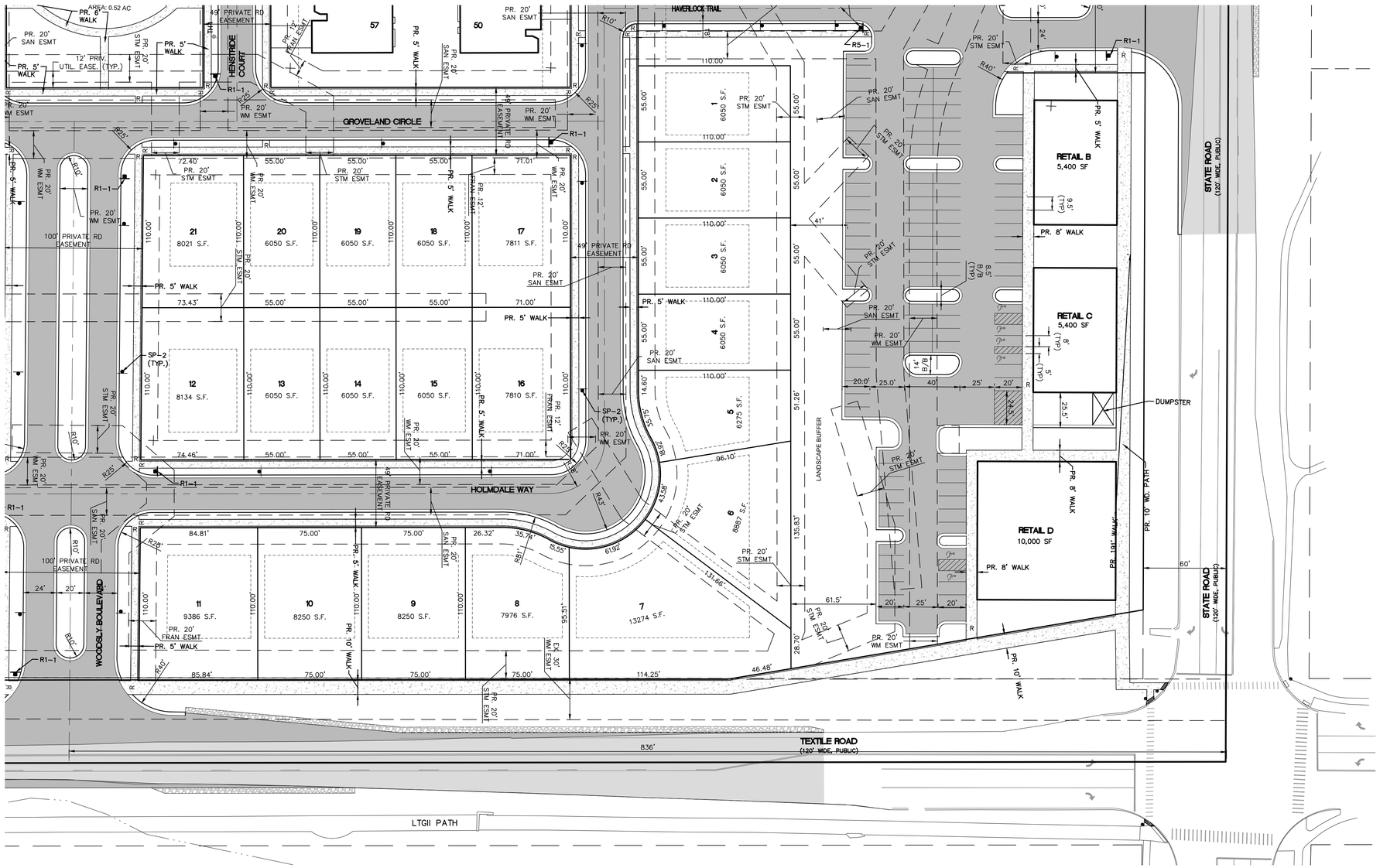
DATE
SEPTEMBER 13, 2016

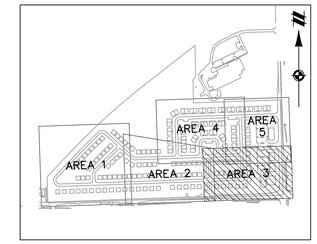
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 13	





KEYMAP
1" = 800'

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD LINE
- EXISTING CURB AND GUTTER
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING RAILROAD
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- SECTION CORNER
- EXISTING WETLAND
- EXISTING FLOOD ZONE
- EXISTING RIP-RAP
- PROPOSED ASPHALT
- PROPOSED "NO PARKING" SIGN / FIRE LANE (DETAIL ON SHEET 90)
- PROPOSED SIGN (DETAIL ON SHEET 90)
- WETLAND BUFFER

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
511 AVIS DR.
ANN ARBOR, MI 48108
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK FINAL SITE PLAN

LAYOUT PLAN – AREA 3

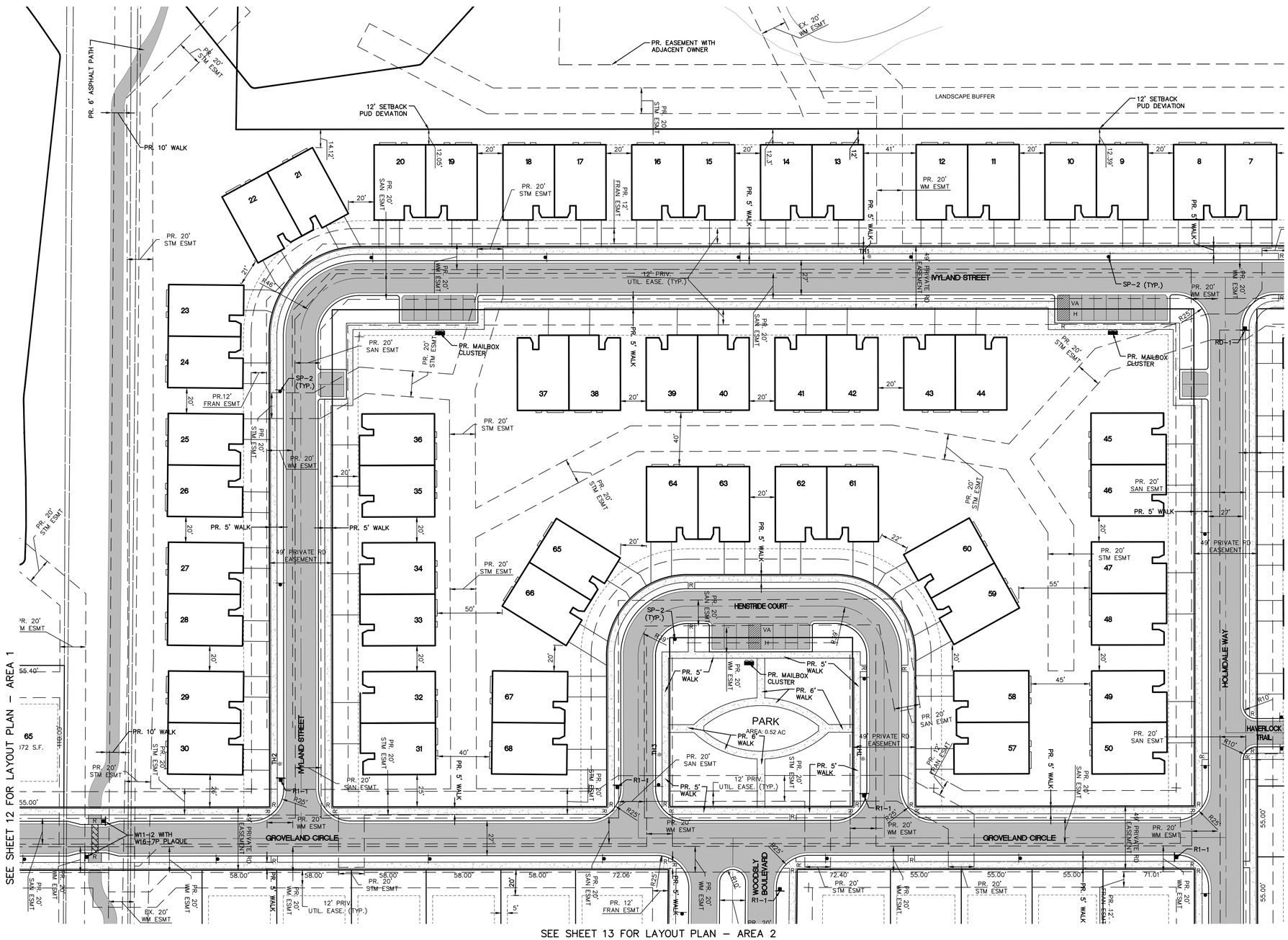
DATE
SEPTEMBER 13, 2016

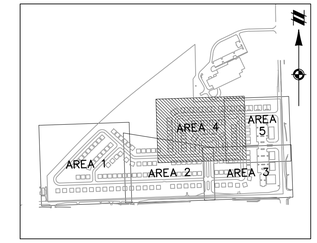
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP./WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 14





KEYMAP
1" = 800'

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD LINE
- EXISTING CURB AND GUTTER
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING RAILROAD
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- SECTION CORNER
- EXISTING WETLAND
- EXISTING FLOOD ZONE
- EXISTING RIP-RAP
- PROPOSED ASPHALT
- PROPOSED "NO PARKING" SIGN / FIRE LANE (DETAIL ON SHEET 90)
- PROPOSED SIGN (DETAIL ON SHEET 90)

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
201 N. MAIN, SUITE 104
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

LAYOUT PLAN – AREA 4

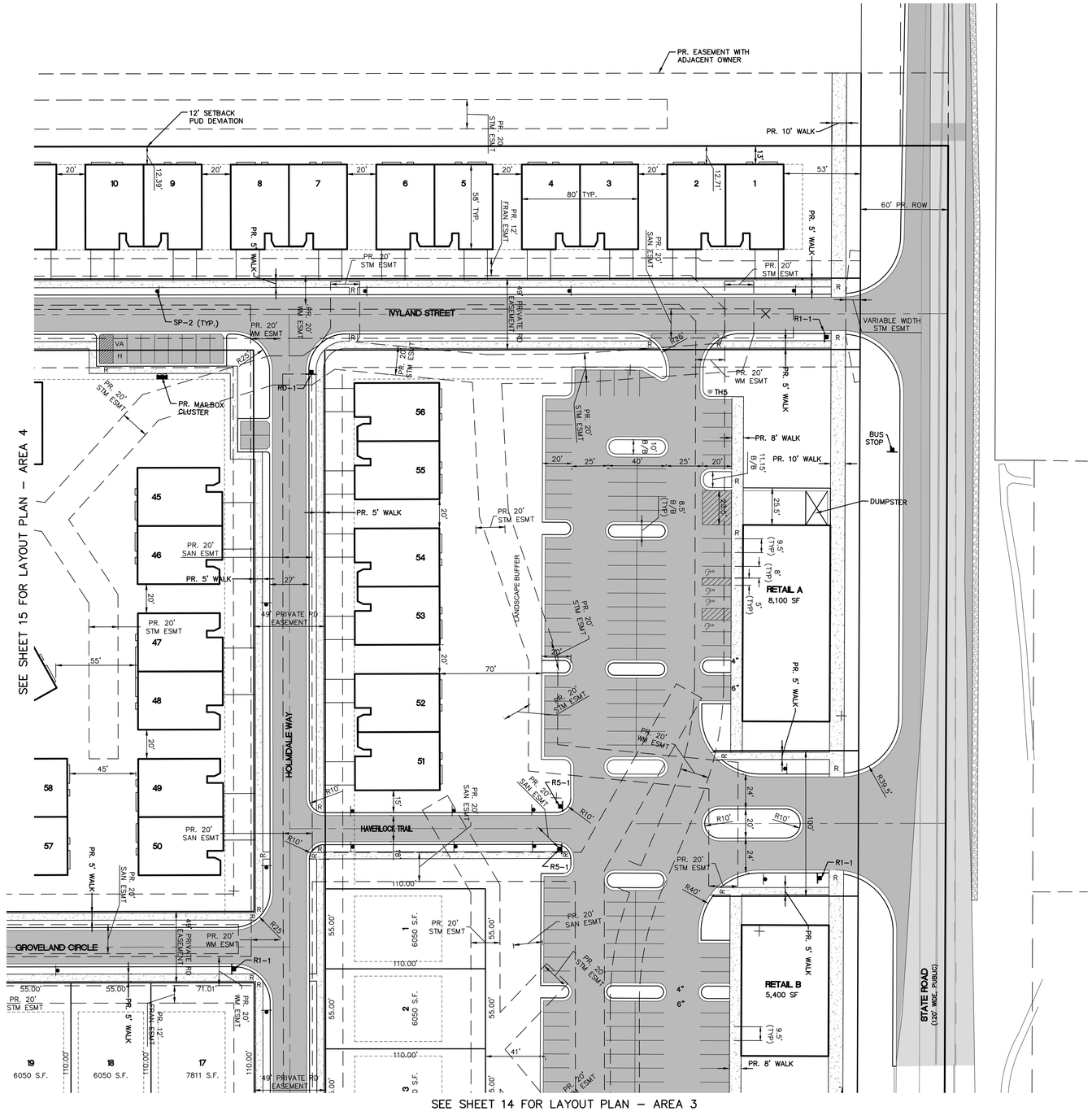
DATE
SEPTEMBER 13, 2016

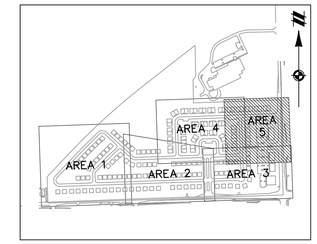
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 15	





KEYMAP
1" = 800'

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD LINE
- EXISTING CURB AND GUTTER
- EXISTING EASEMENT
- SECTION LINE
- BOUNDARY/PROPERTY LINE
- EXISTING RAILROAD
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- SECTION CORNER
- EXISTING WETLAND
- EXISTING FLOOD ZONE
- EXISTING RIP–RAP
- PROPOSED ASPHALT
- PROPOSED "NO PARKING" SIGN / FIRE LANE (DETAIL ON SHEET 90)
- PROPOSED SIGN (DETAIL ON SHEET 90)
- WETLAND BUFFER

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
201 N. MAIN ST. STE 104
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

LAYOUT PLAN – AREA 5

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM–SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM–SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

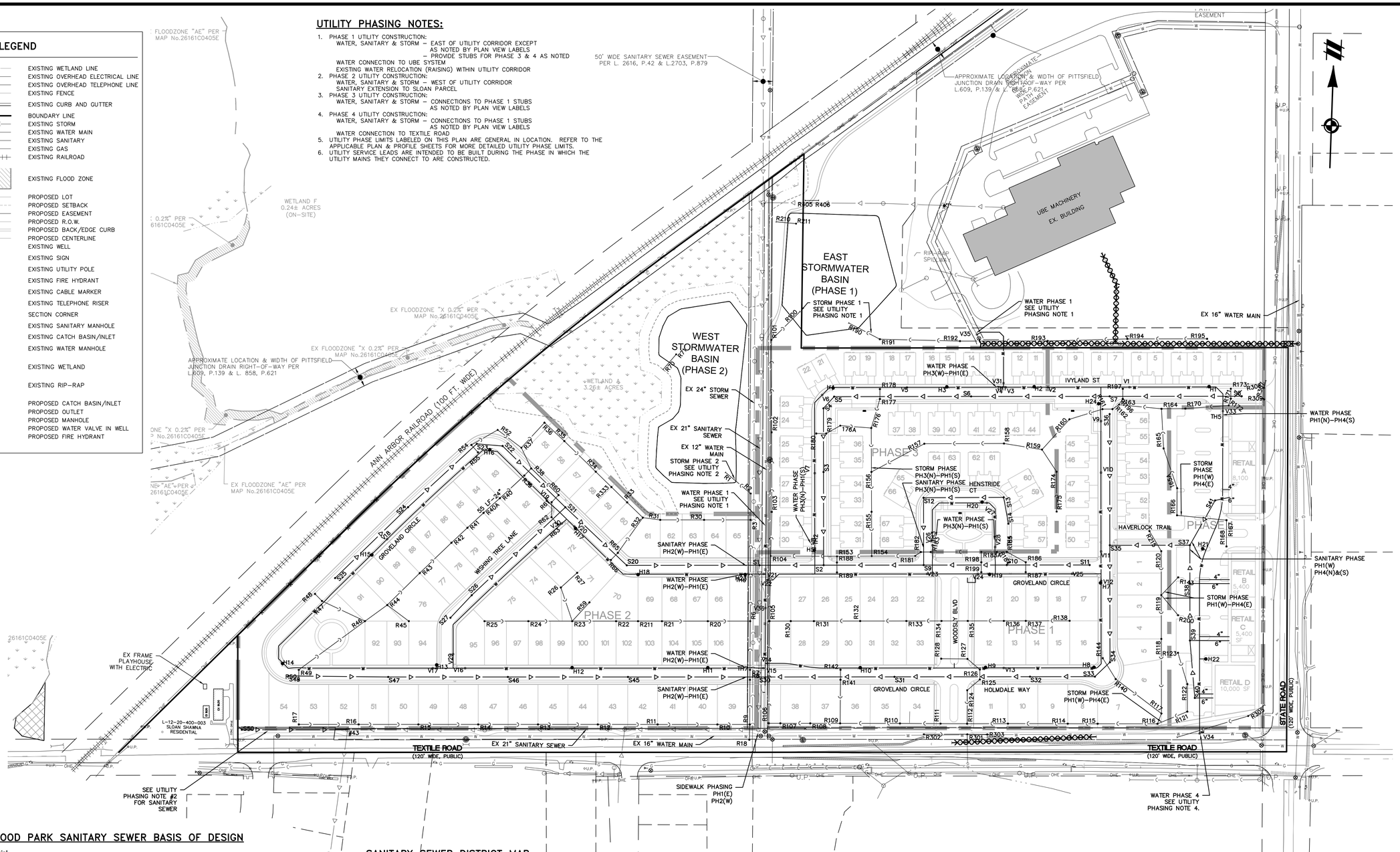
DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 16

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

UTILITY PHASING NOTES:

1. PHASE 1 UTILITY CONSTRUCTION:
   WATER, SANITARY & STORM – EAST OF UTILITY CORRIDOR EXCEPT AS NOTED BY PLAN VIEW LABELS
   – PROVIDE STUBS FOR PHASE 3 & 4 AS NOTED
   WATER CONNECTION TO UBE SYSTEM
   EXISTING WATER RELOCATION (RAISING) WITHIN UTILITY CORRIDOR
2. PHASE 2 UTILITY CONSTRUCTION:
   WATER, SANITARY & STORM – WEST OF UTILITY CORRIDOR
   SANITARY EXTENSION TO SLOAN PARCEL
3. PHASE 3 UTILITY CONSTRUCTION:
   WATER, SANITARY & STORM – CONNECTIONS TO PHASE 1 STUBS AS NOTED BY PLAN VIEW LABELS
4. PHASE 4 UTILITY CONSTRUCTION:
   WATER, SANITARY & STORM – CONNECTIONS TO PHASE 1 STUBS AS NOTED BY PLAN VIEW LABELS
   WATER CONNECTION TO TEXTILE ROAD
5. UTILITY PHASE LIMITS LABELED ON THIS PLAN ARE GENERAL IN LOCATION. REFER TO THE APPLICABLE PLAN & PROFILE SHEETS FOR MORE DETAILED UTILITY PHASE LIMITS.
6. UTILITY SERVICE LEADS ARE INTENDED TO BE BUILT DURING THE PHASE IN WHICH THE UTILITY MAINS THEY CONNECT TO ARE CONSTRUCTED.



INGLEWOOD PARK SANITARY SEWER BASIS OF DESIGN

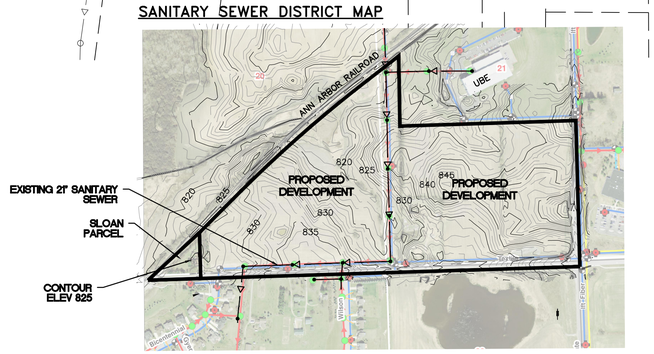
Residential

Number of Single family lots =		106	lots
Number of Multi-family units =		68	units
		174	E.R.U.

Non-Residential

Restaurant =	8100 s.f.			
ERU =	4 units/1000 sf	8100 sf =	32.4	E.R.U.
Retail =	20800 s.f.			
ERU =	0.35 units/1000 sf	20800 units =	7.3	E.R.U.
TOTAL =			213.7	E.R.U.
Number of Persons per lot =			3.5	persons/ERU
Design Population =	213.7 units x	3.5 units =	748.0	people
Average Discharge Rate =			100	GPCPD
Average Discharge = (748 People x 100 GPCPD)/(1440 min/day)(448.8 gpm/cfs)=			0.116	cfs
Peaking Factor = $(18 + (\text{Population}/1000)^{0.5})/(4 + (\text{Population}/1000)^{0.5})$ =			3.88	
Peak Flow = Average Discharge x Peaking Factor =			0.449	cfs
Capacity of 10 " pipe @ 0.42 %=		1.42 cfs >	0.449	cfs

SANITARY SEWER DISTRICT MAP



SANITARY SERVICE AREA FLOW CALCULATIONS

	Acres	S.F. Lots/acre	E.R.U.	# Persons per Lot	Design Population	Avg. Discharge (cfs)	Peak Factor	Peak Flow (cfs)
Proposed Development	63.39	-	214	3.5	748	0.116	3.878	0.449
Sloan Residence	1.01	4.0	4	3.5	14	0.002	4.399	0.010
Total						**0.118**		**0.458**
					Capacity of 10" Sewer (cfs) at 0.28%			**1.360**

NOTE: EXTERNAL GREASE TRAPS SHALL BE PROVIDED FOR ANY RETAIL BUILDING WITH FOOD SERVICE

SANITARY & WATER NOTES:

1. ALL PROPOSED SANITARY SEWER SHALL BE 10" DIAMETER.
2. ALL PROPOSED WATER MAIN SHALL BE 8" DIAMETER.
3. ALL PROPOSED WATER MAIN TIE–INS MUST BE LIVE TAPS.
4. SANITARY & WATER SERVICE SHALL BE PROVIDED TO EVERY LOT, EACH MULTI–FAMILY UNIT, AND EACH COMMERCIAL BUILDING. SERVICE LEAD SIZES FOR EACH COMMERCIAL BUILDING SHALL BE DETERMINED BASED ON INTENDED BUILDING USE (TO BE DETERMINED).
5. AT PROPOSED 8" WATER MAIN BENDS MADE WITHOUT FITTINGS, THE MAXIMUM DEGREE OF DEFLECTION SHALL BE 5°; THEREFORE, A RADIUS OF 205' FOR 18' PIPE LENGTHS A RADIUS OF 230' FOR 20' PIPE LENGTHS.
6. EXTERNAL GREASE TRAPS MUST BE PROVIDED FOR ANY RETAIL BUILDING WITH FOOD SERVICE.
7. REFER TO UTILITY PHASING NOTES ON THIS SHEET

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

OVERALL UTILITIES PLAN

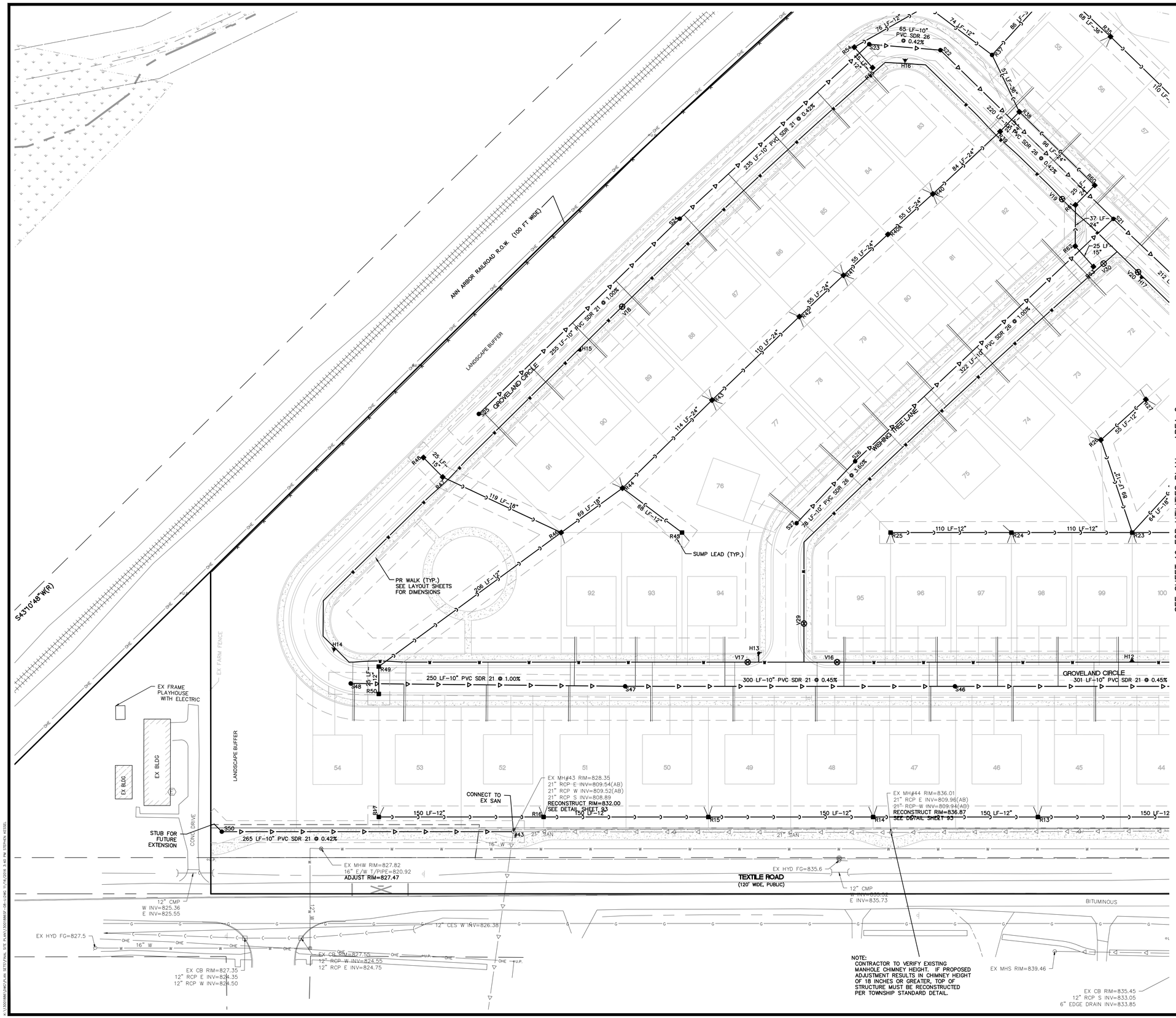
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM–SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM–SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

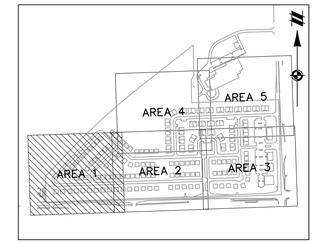
REVISIONS

SCALE 0 60 120
SCALE: 1" = 120'

DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		
SHEET NO.	17		



SEE SHEET 19 FOR UTILITIES PLAN – AREA 2



KEYMAP
1" = 800'

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

UTILITIES PLAN – AREA 1

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

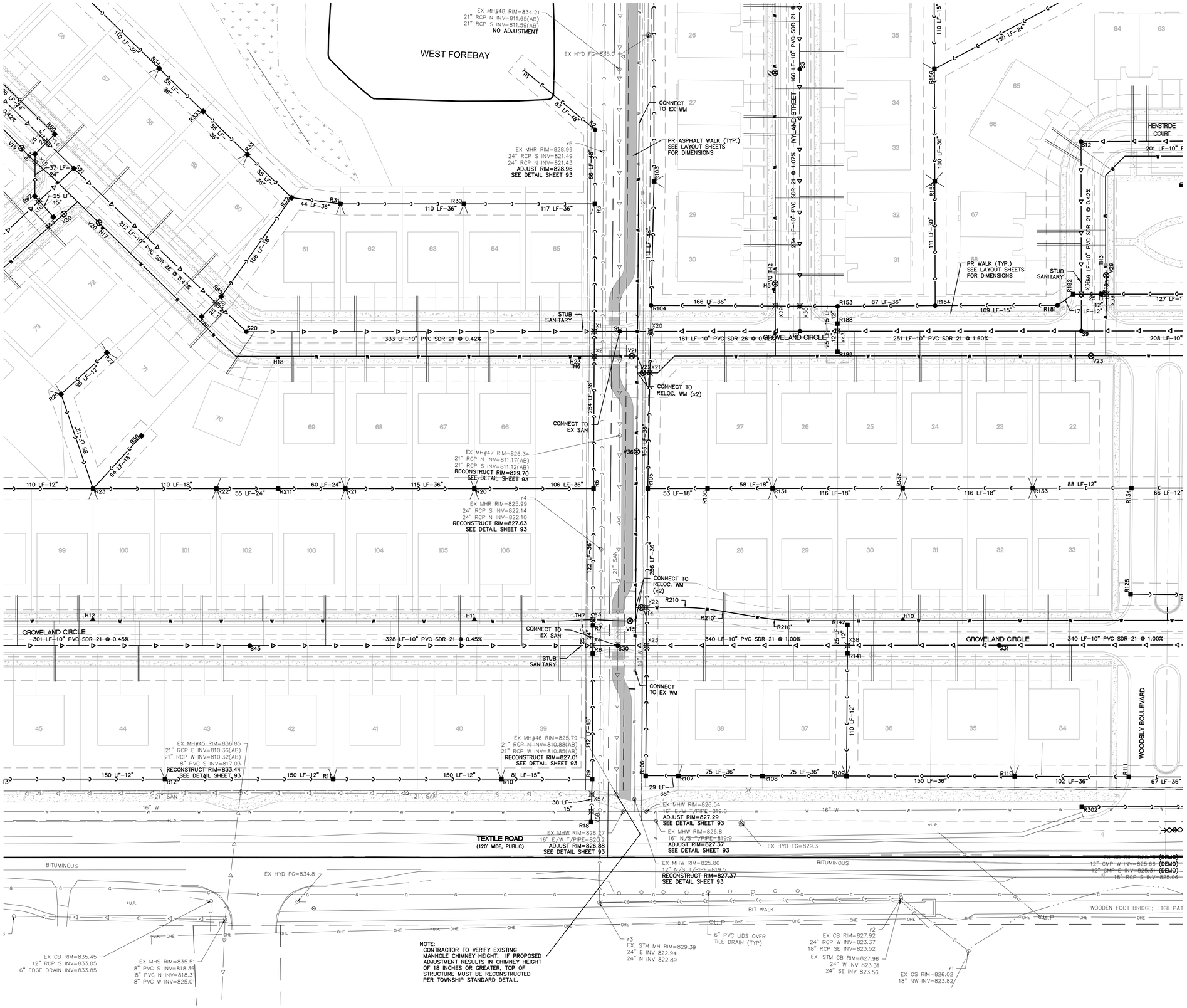
SCALE 0 20 40
SCALE: 1" = 40'

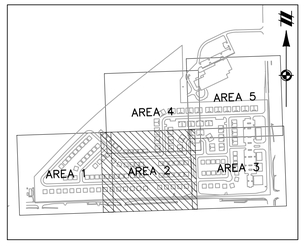
DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 18	

SEE SHEET 21 FOR UTILITIES PLAN – AREA 4

SEE SHEET 18 FOR UTILITIES PLAN – AREA 1

SEE SHEET 20 FOR UTILITIES PLAN – AREA 3





KEYMAP
1" = 800'

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

UTILITIES PLAN – AREA 2

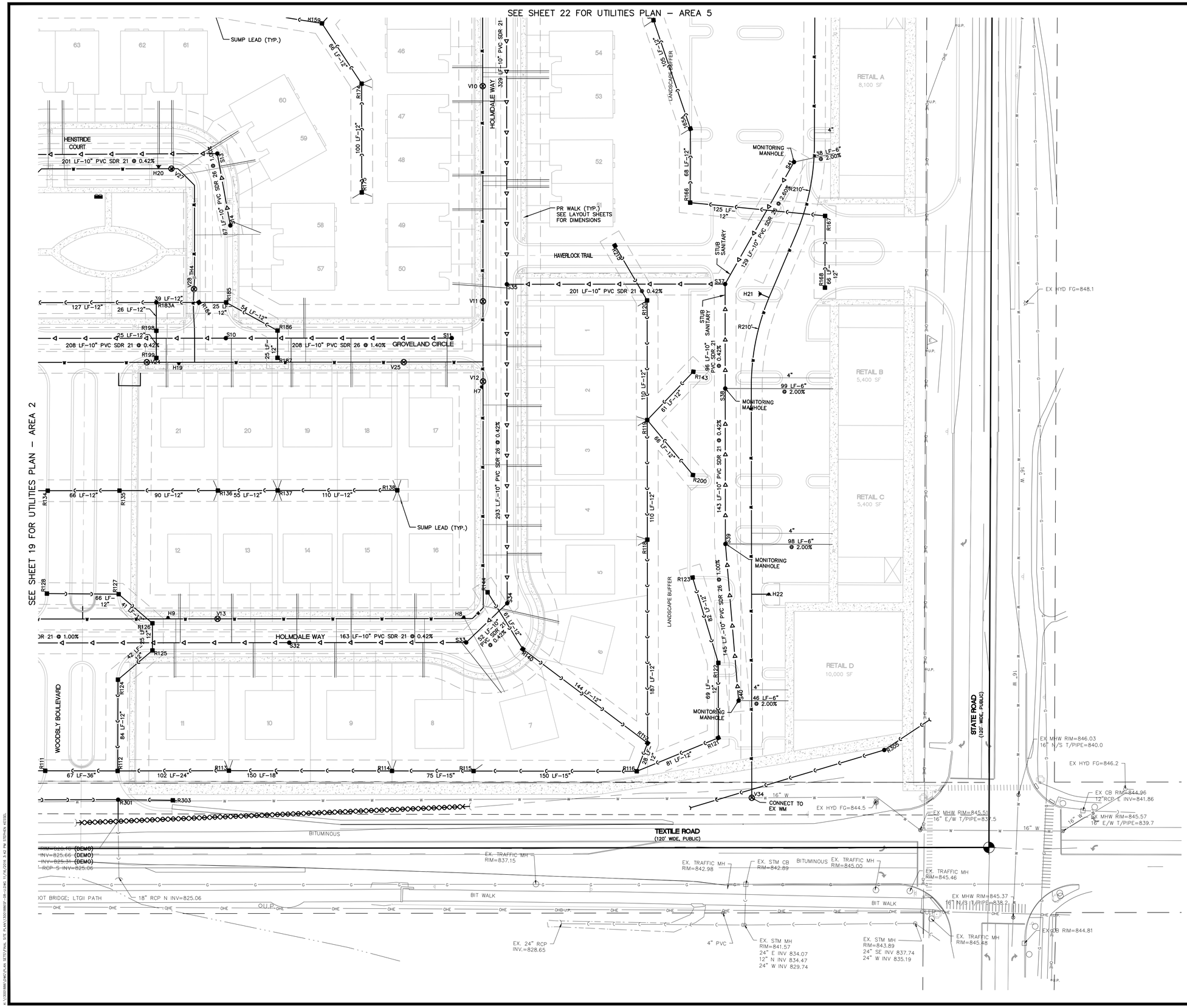
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP, WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 19	



LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP–RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

UTILITIES PLAN – AREA 3

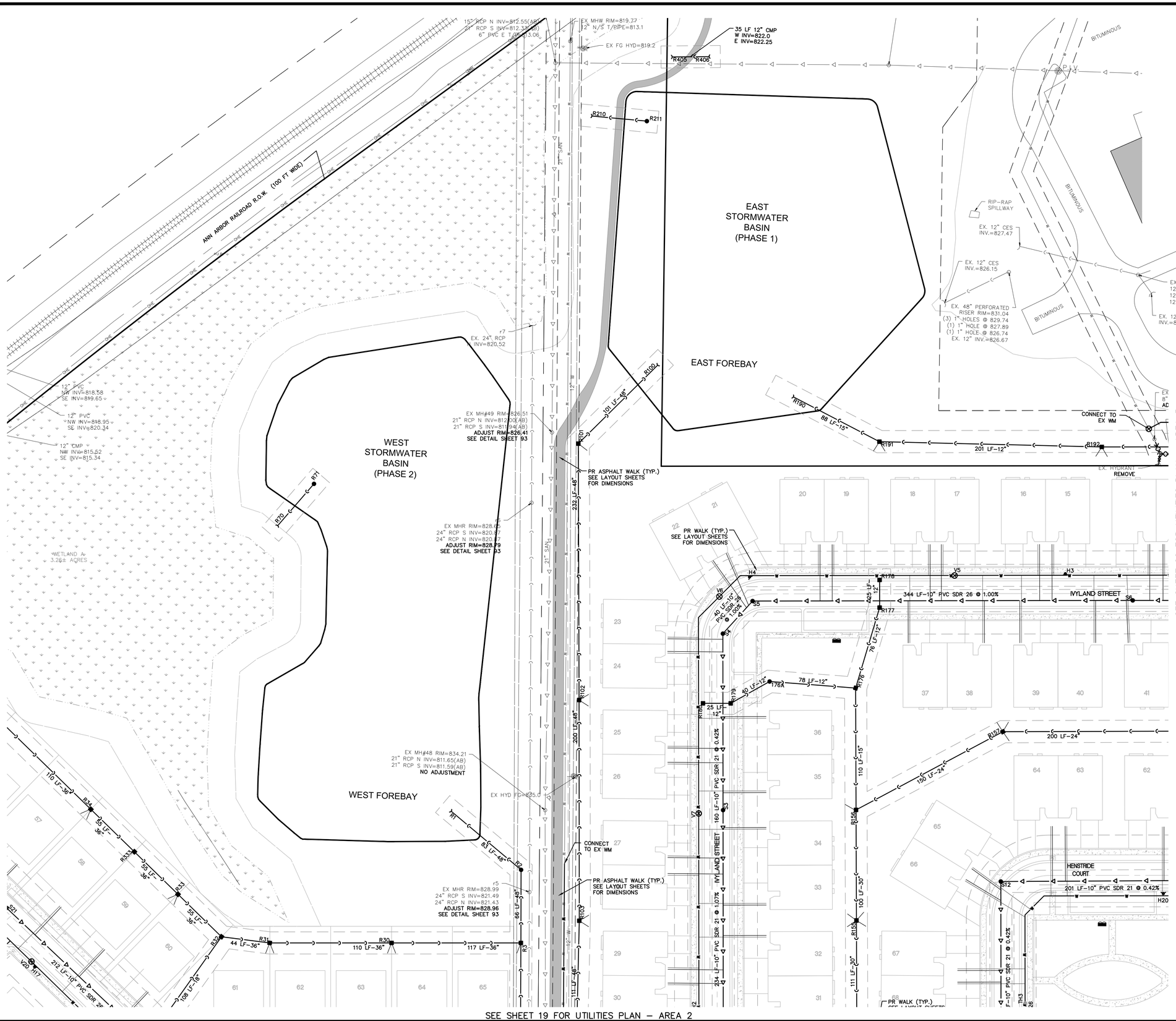
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM–SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM–SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 20	



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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

UTILITIES PLAN – AREA 4

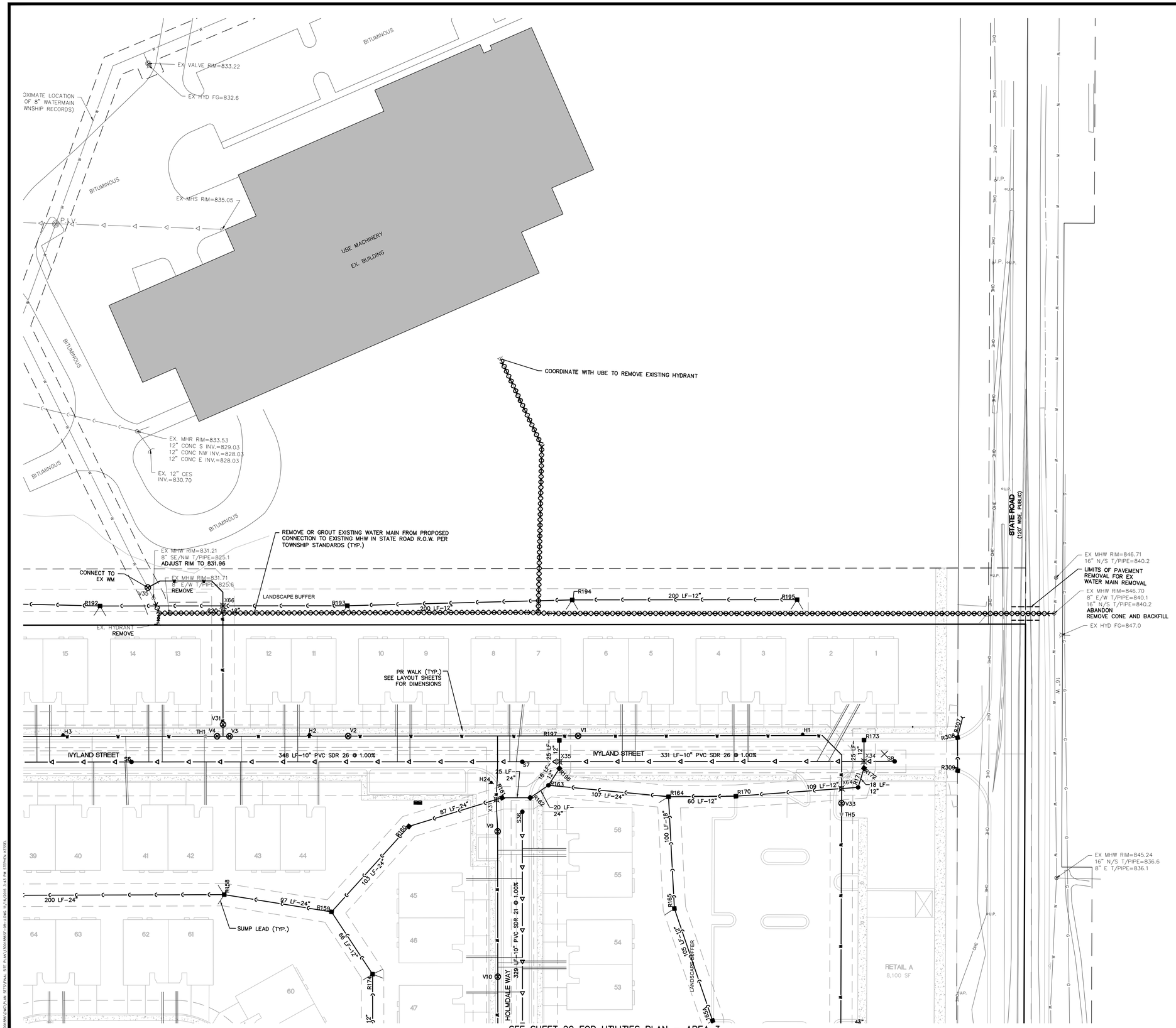
DATE
SEPTEMBER 13, 2016

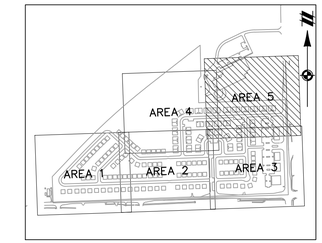
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 21	





KEYMAP
1" = 800'

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

UTILITIES PLAN – AREA 5

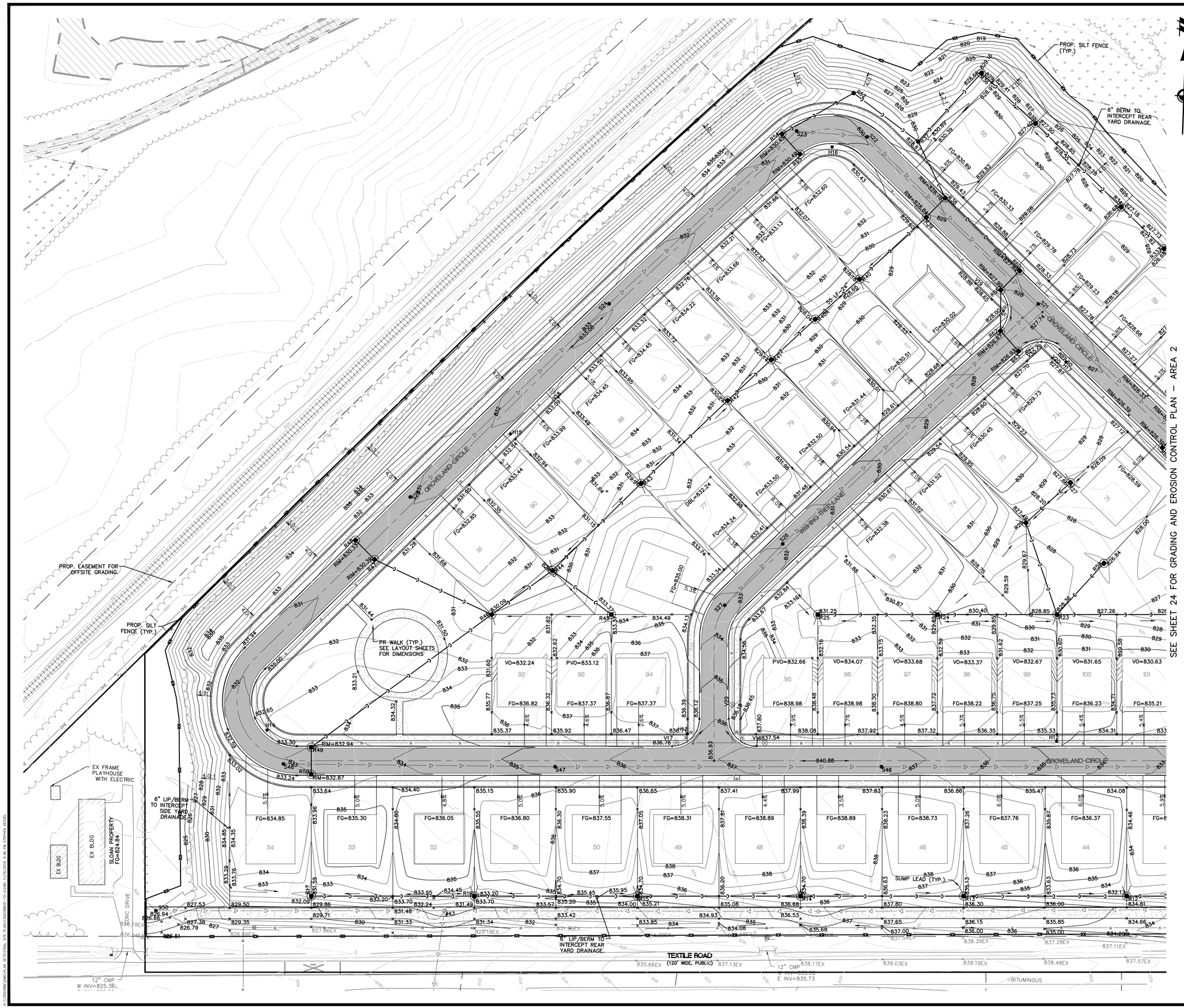
DATE
SEPTEMBER 13, 2016

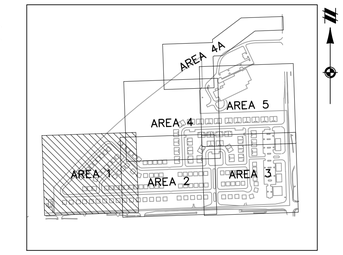
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP./WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

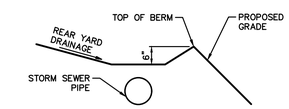
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 22	





KEYMAP
1" = 800'



6" LIP/BERM DETAIL
NO SCALE

WO=752.5	VO=754.20
760.00 F.G.	760.00 FG
WO=FINISH GRADE OF WALK-OUT	(P)VO=FINISH GRADE OF (PARTIAL) VIEW-OUT
FG=FINISH GRADE	FG=FINISH GRADE
DBL = DROP BRICK LEDGE	

GRADING DETAILS
NO SCALE

NOTE: SEE SHEET 90 FOR MASS GRADING SCHEMATICS

NOTE: ALL SUMP PUMP DISCHARGES SHALL BE DIRECTLY TIED INTO THE STORMWATER SYSTEM

LEGEND

- 801 / 800 — EXISTING 1' CONTOUR / EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- OHE — EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- W — EXISTING WATER MAIN
- EXISTING SANITARY
- G — EXISTING GAS
- EXISTING RAILROAD
- 801 / 800 — PROPOSED 1' CONTOUR / PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- W — PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- 890 — PROPOSED CONTOUR
- PROPOSED SILT FENCE
- PROPOSED TREE FENCE
- W — EXISTING WELL
- EXISTING SIGN
- U.P. — EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT
- PROPOSED INLET FILTER
- PROPOSED MUD MAT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

GRADING AND EROSION CONTROL PLAN – AREA 1

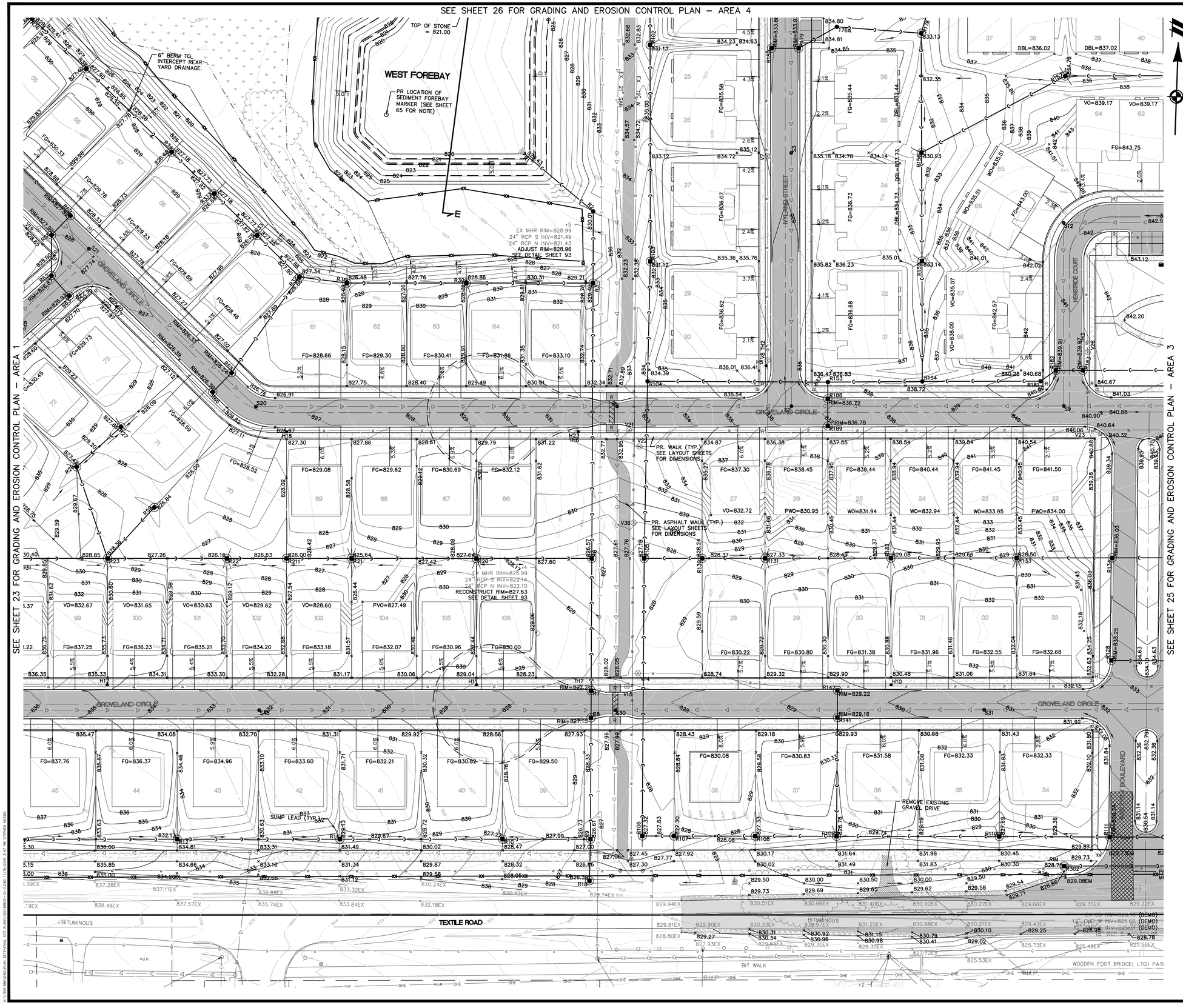
DATE
SEPTEMBER 13, 2016

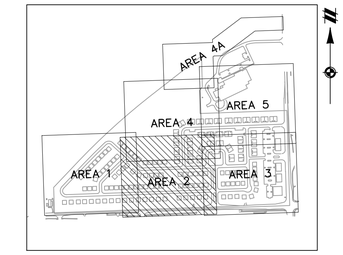
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 23	





KEYMAP
1" = 800'

WO=752.5
760.00 F.G.

WO=FINISH GRADE OF WALK-OUT
FG=FINISH GRADE
DBL = DROP BRICK LEDGE

VO=754.20
760.00 FG

(P)VO=FINISH GRADE OF (PARTIAL) VIEW-OUT
FG=FINISH GRADE

GRADING DETAILS

NO SCALE

NOTE: SEE SHEET 90 FOR MASS GRADING SCHEMATICS

NOTE: ALL SUMP PUMP DISCHARGES SHALL BE DIRECTLY TIED INTO THE STORMWATER SYSTEM

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CONTOUR
- PROPOSED SILT FENCE
- PROPOSED TREE FENCE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT
- PROPOSED INLET FILTER
- PROPOSED MUD MAT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

GRADING AND EROSION CONTROL PLAN – AREA 2

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

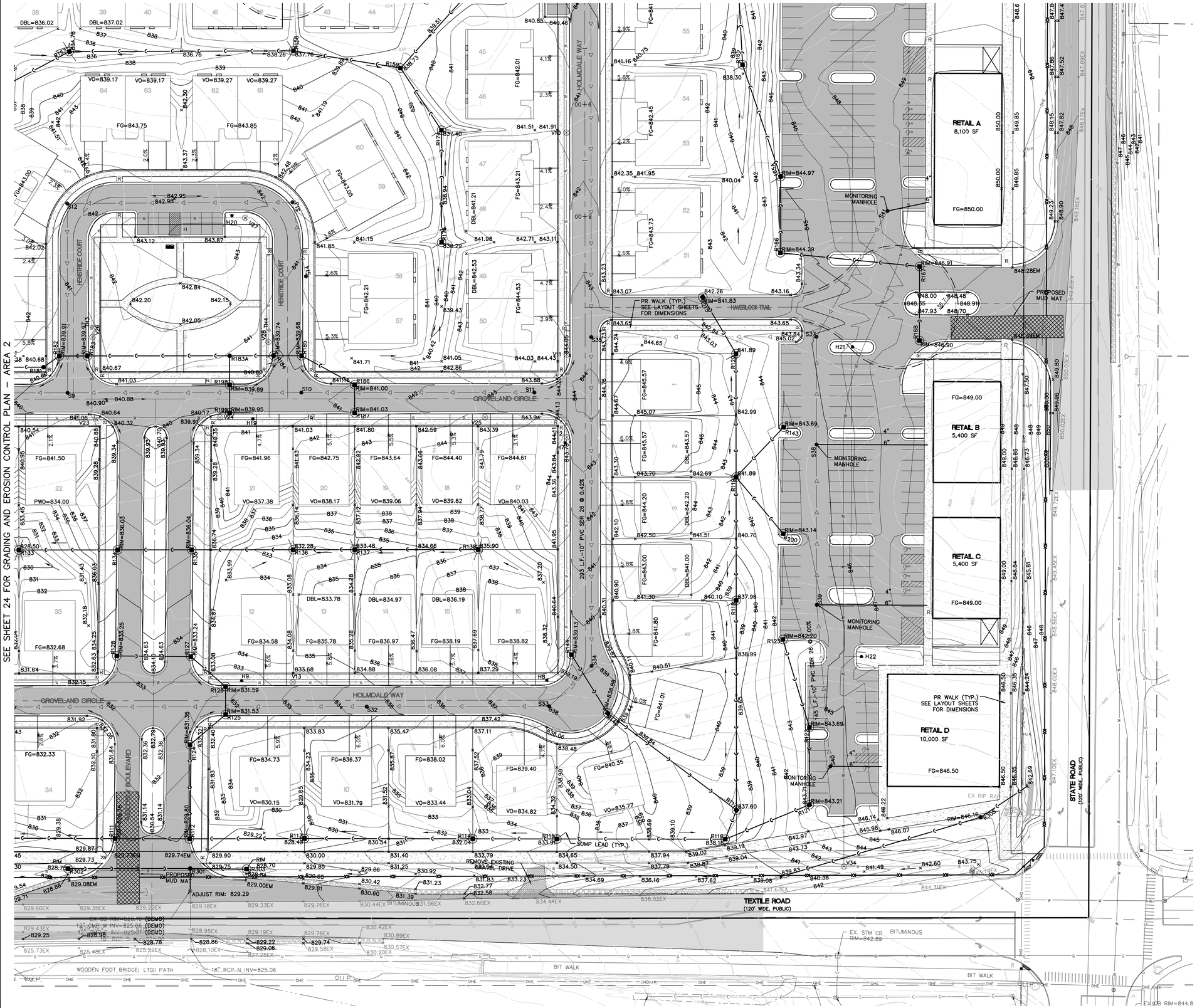
REVISIONS

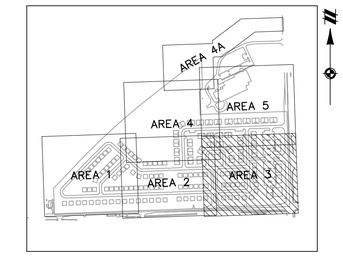
SCALE 0 20 40
SCALE: 1" = 40'

DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		
SHEET NO.	24		

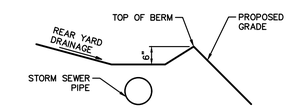
SEE SHEET 26 FOR GRADING AND EROSION CONTROL PLAN – AREA 4 & SHEET 27 FOR GRADING AND EROSION CONTROL PLAN – AREA 5

SEE SHEET 24 FOR GRADING AND EROSION CONTROL PLAN – AREA 2





KEYMAP
1" = 800'



6" LIP/BERM DETAIL
NO SCALE

WO=752.5	VO=754.20
760.00 F.G.	760.00 FG
WO=FINISH GRADE OF WALK-OUT	(P)VO=FINISH GRADE OF (PARTIAL) VIEW-OUT
FG=FINISH GRADE	FG=FINISH GRADE
DBL = DROP BRICK LEDGE	

GRADING DETAILS
NO SCALE

NOTE: SEE SHEET 90 FOR MASS GRADING SCHEMATICS

NOTE: ALL SUMP PUMP DISCHARGES SHALL BE DIRECTLY TIED INTO THE STORMWATER SYSTEM

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE	EXISTING OVERHEAD ELECTRICAL LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
S	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PROPOSED STORM SEWER
S	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
890	PROPOSED CONTOUR
	PROPOSED SILT FENCE
	PROPOSED TREE FENCE
W	EXISTING WELL
	EXISTING SIGN
O.U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WETLAND
	PROPOSED RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT
	PROPOSED INLET FILTER
	PROPOSED MUD MAT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

GRADING AND EROSION CONTROL PLAN – AREA 3

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

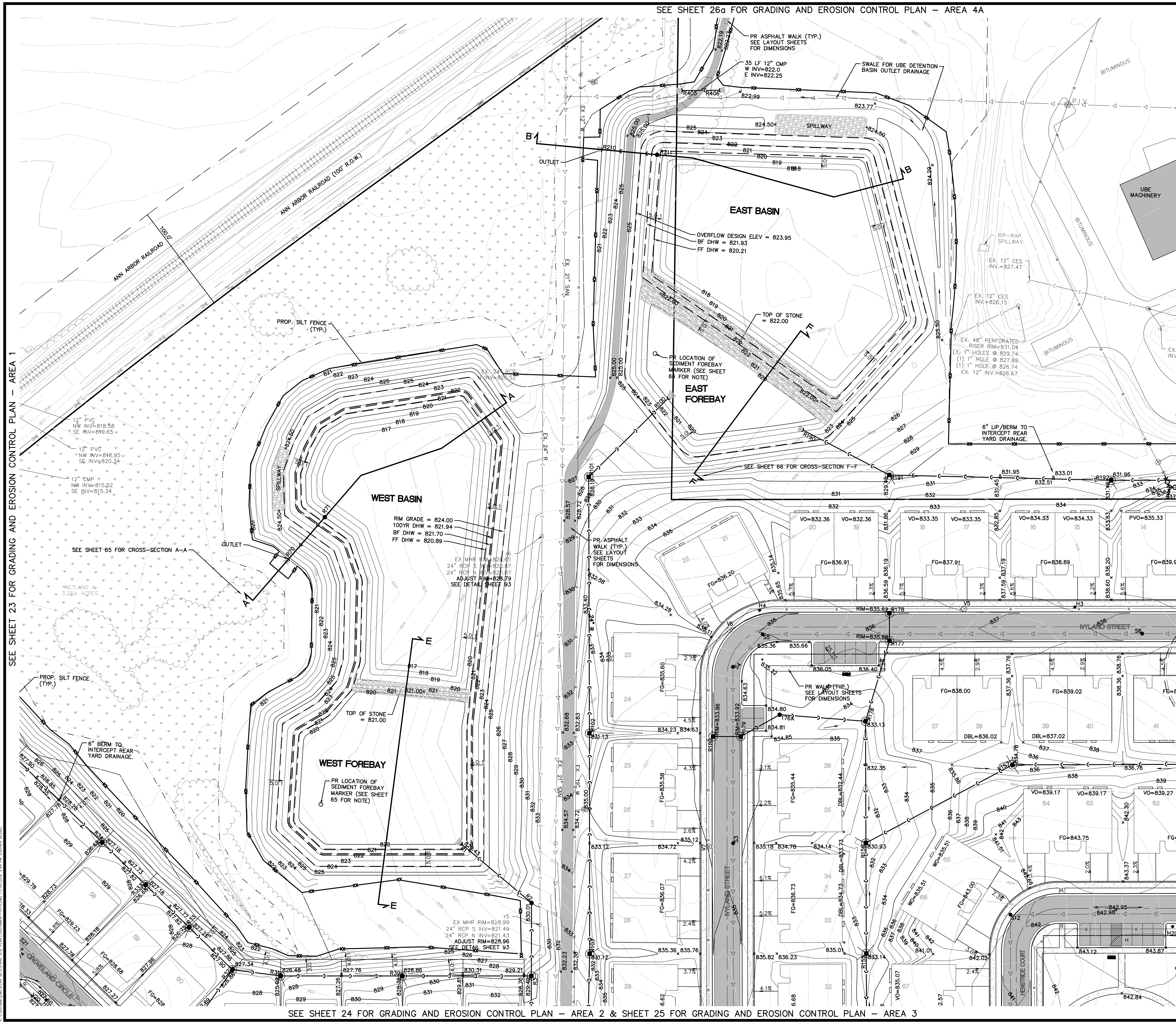
SCALE 0 20 40
SCALE: 1" = 40'

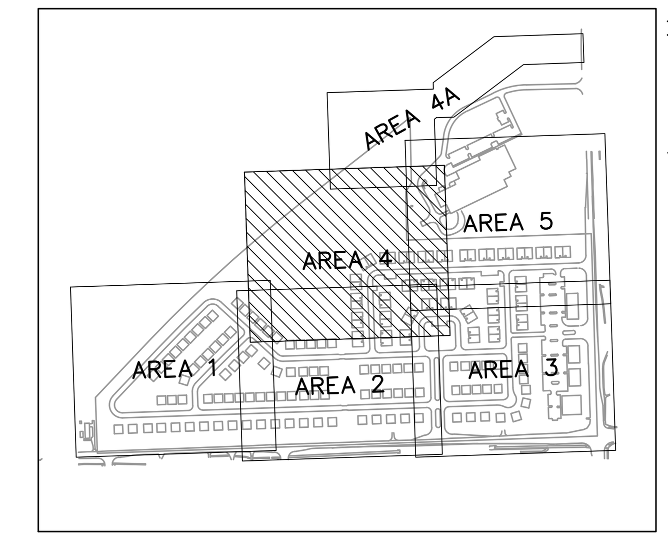
DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 25	

SEE SHEET 26a FOR GRADING AND EROSION CONTROL PLAN – AREA 4A

SEE SHEET 23 FOR GRADING AND EROSION CONTROL PLAN – AREA 1

SEE SHEET 27 FOR GRADING AND EROSION CONTROL PLAN – AREA 5





KEYMAP
1" = 800'

WO=752.5	VO=754.20
760.00 F.G.	760.00 FG

WO=FINISH GRADE OF WALK-OUT
FG=FINISH GRADE
DBL = DROP BRICK LEDGE
(P)VO=FINISH GRADE OF (PARTIAL) VIEW-OUT
FG=FINISH GRADE

GRADING DETAILS
NO SCALE

NOTE: SEE SHEET 90 FOR MASS GRADING SCHEMATICS

NOTE: ALL SUMP PUMP DISCHARGES SHALL BE DIRECTLY TIED INTO THE STORMWATER SYSTEM

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CONTOUR
- PROPOSED SILT FENCE
- PROPOSED TREE FENCE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT
- PROPOSED INLET FILTER
- PROPOSED MUD MAT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST. ANN ARBOR, MI 48104 734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT: SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK FINAL SITE PLAN

GRADING AND EROSION CONTROL PLAN – AREA 4

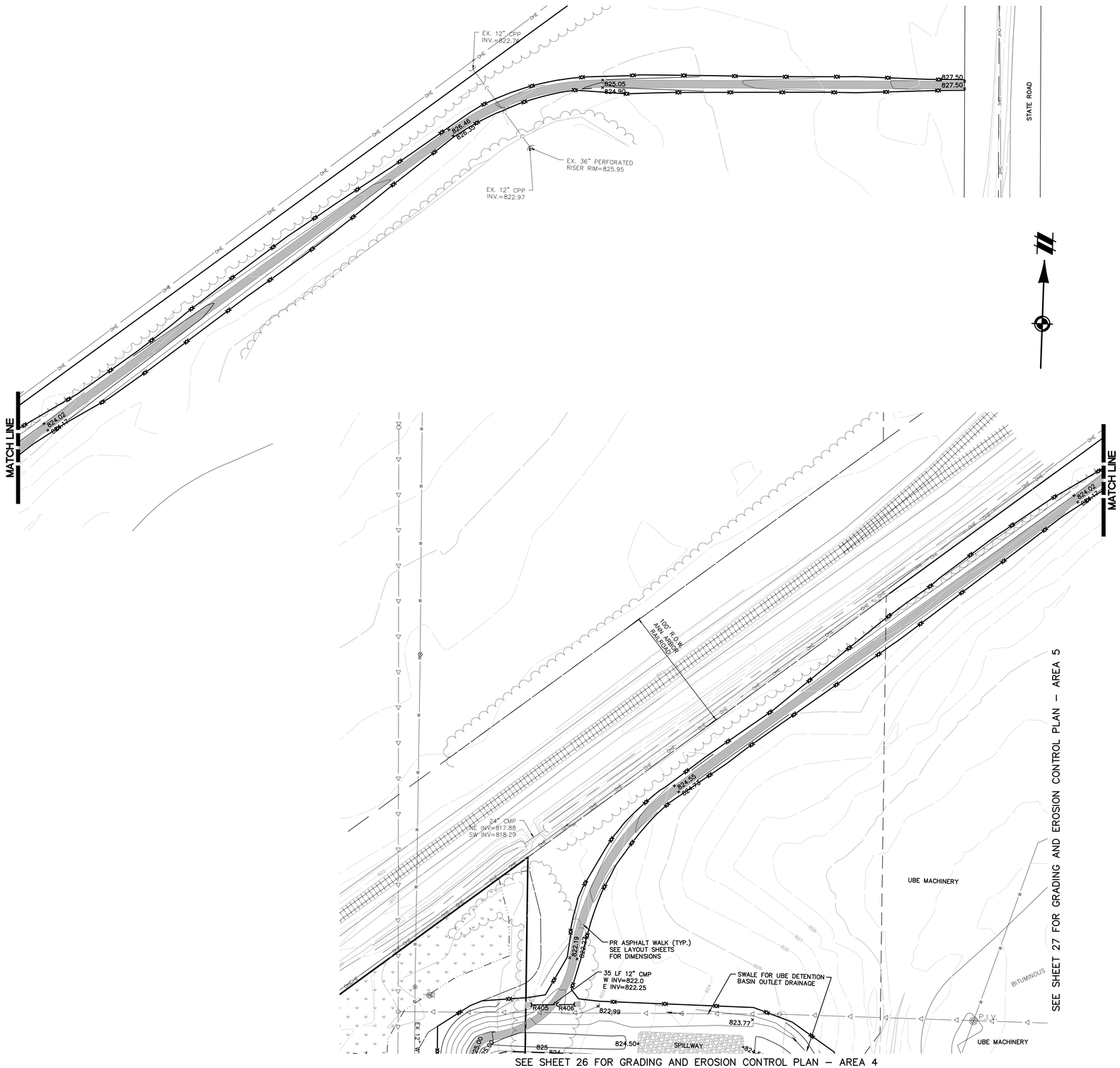
DATE: SEPTEMBER 13, 2016

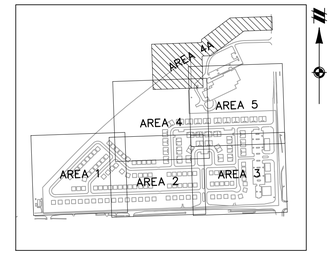
REVISIONS
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

SCALE: 1" = 40'

DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		

SHEET NO.
26





KEYMAP
1" = 800'

WO=752.5	VO=754.20
760.00 F.G.	760.00 FG
WO=FINISH GRADE OF WALK-OUT	(P)VO=FINISH GRADE OF
FG=FINISH GRADE	(PARTIAL) VIEW-OUT
DBL = DROP BRICK LEDGE	FG=FINISH GRADE

GRADING DETAILS
NO SCALE

NOTE: SEE SHEET 90 FOR MASS GRADING SCHEMATICS

NOTE: ALL SUMP PUMP DISCHARGES SHALL BE DIRECTLY TIED INTO THE STORMWATER SYSTEM

LEGEND

- 801 — EXISTING 1' CONTOUR
- 800 — EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- OHE — EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- C — EXISTING STORM
- W — EXISTING WATER MAIN
- EXISTING SANITARY
- G — EXISTING GAS
- EXISTING RAILROAD
- 801 — PROPOSED 1' CONTOUR
- 800 — PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- W — PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- 890 — PROPOSED CONTOUR
- PROPOSED SILT FENCE
- PROPOSED TREE FENCE
- W — EXISTING WELL
- EXISTING SIGN
- U.P. — EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT
- PROPOSED INLET FILTER
- PROPOSED MUD MAT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

GRADING AND EROSION CONTROL PLAN – AREA 4A

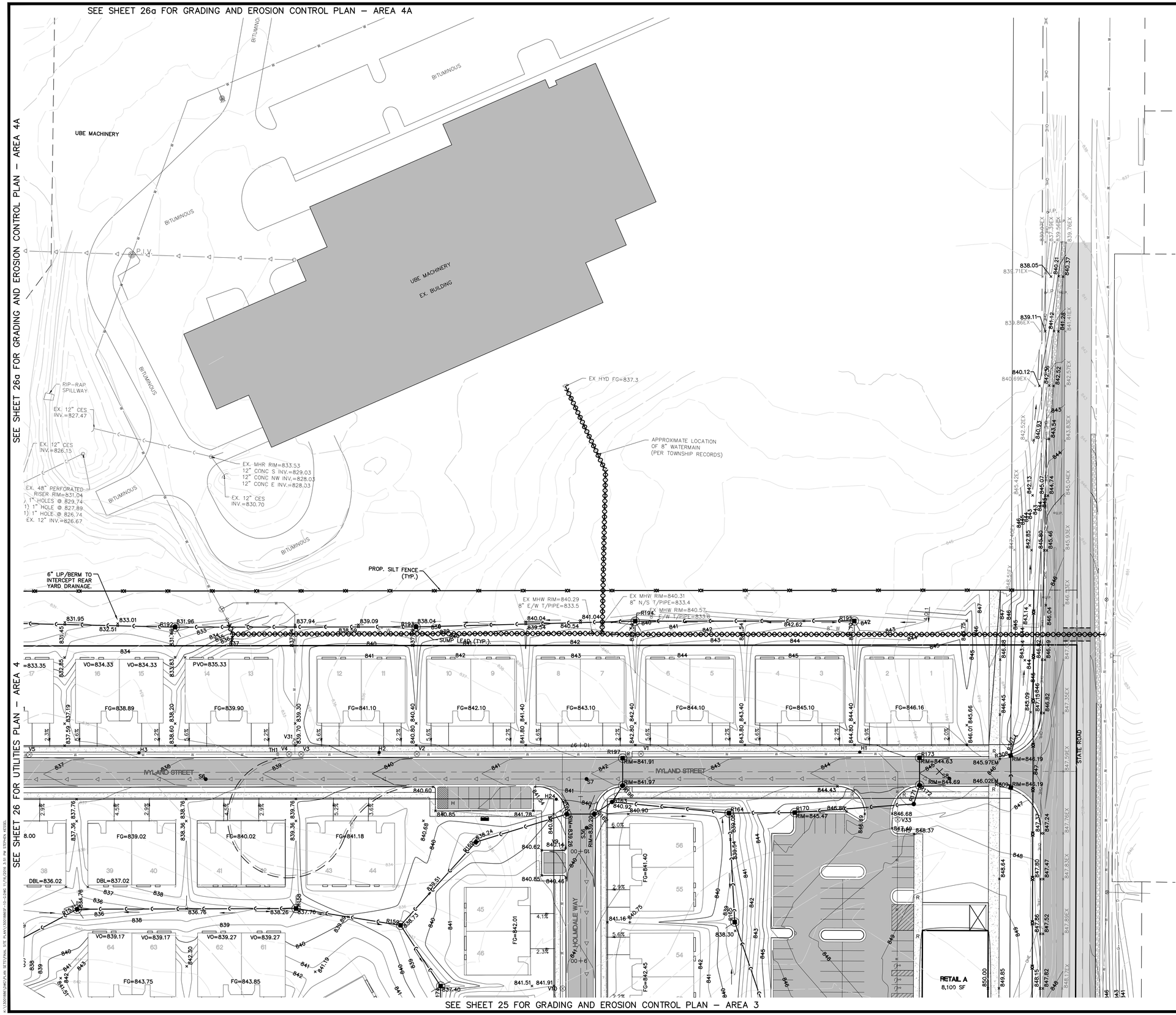
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 26a	



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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

GRADING AND EROSION CONTROL PLAN – AREA 5

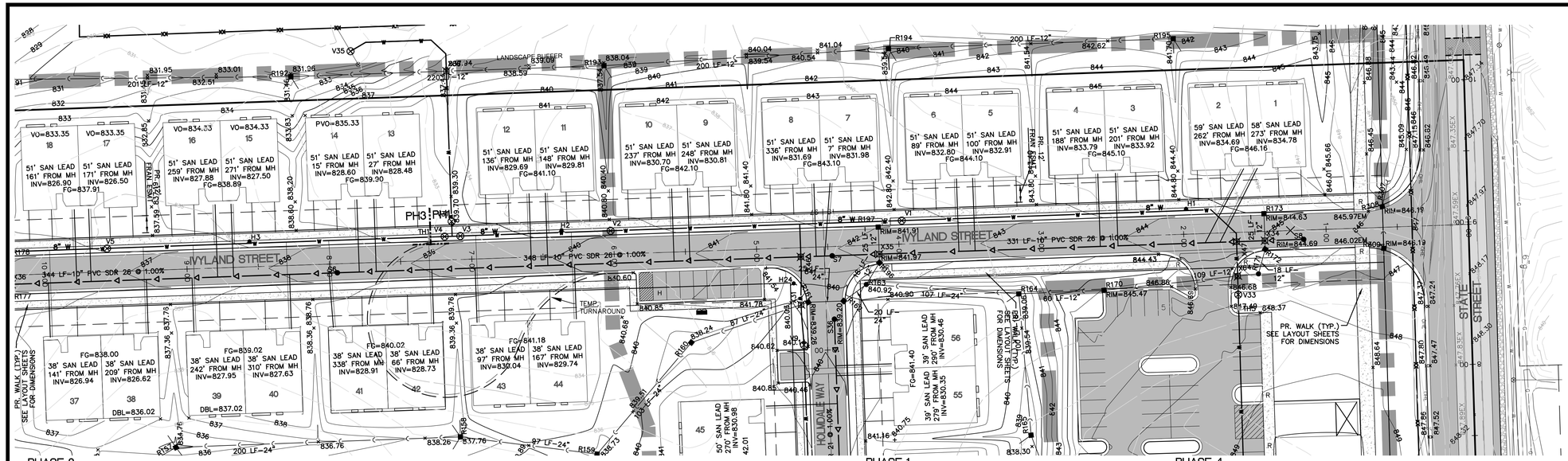
DATE
SEPTEMBER 13, 2016

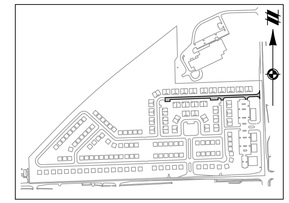
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

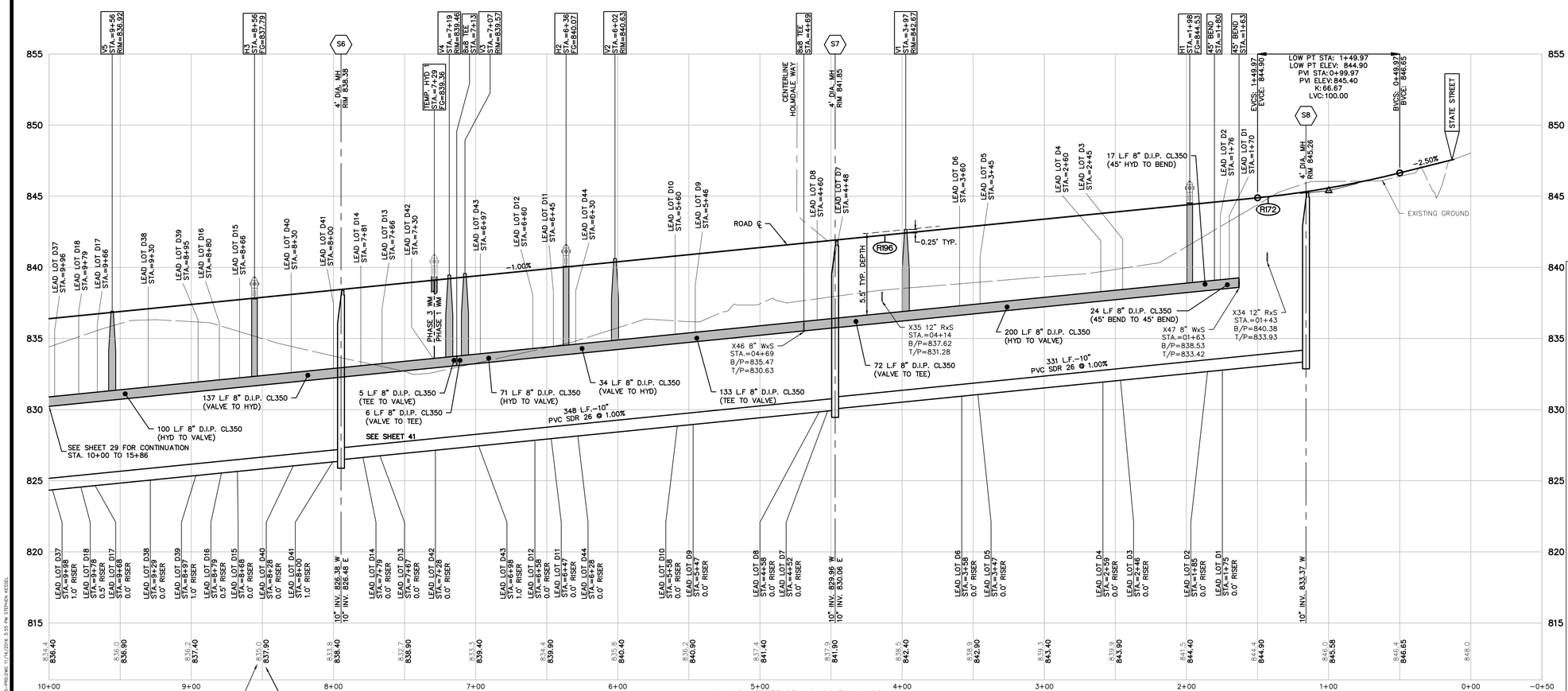
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 27	





KEYMAP
1" = 800'



QUANTITIES:

WATERMAIN:
799 L.F. 8" D.I.P. CL350 (VALVE TO 45° BEND)
(3) HYDRANT ASSEMBLIES
(5) 8" VALVES
(1) TEMP. HYDRANT (PH. 1)

SANITARY:
679 L.F. 10" PVC SDR 26
(3) 4' MANHOLES

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 1

WATER MAIN = PHASE 1 / PHASE 3 (REFER TO PROFILE)

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

IVYLAND STREET PLAN AND PROFILE
STA. 0+00 TO 10+00

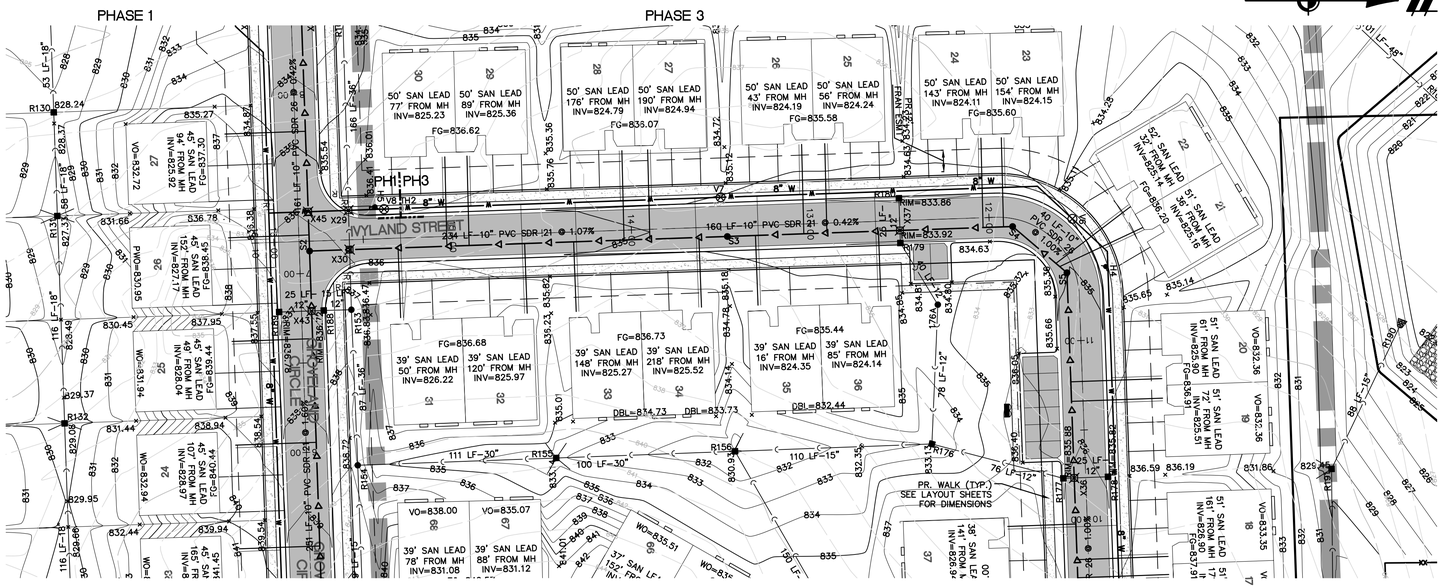
DATE
SEPTEMBER 13, 2016

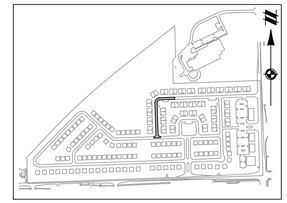
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP./WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

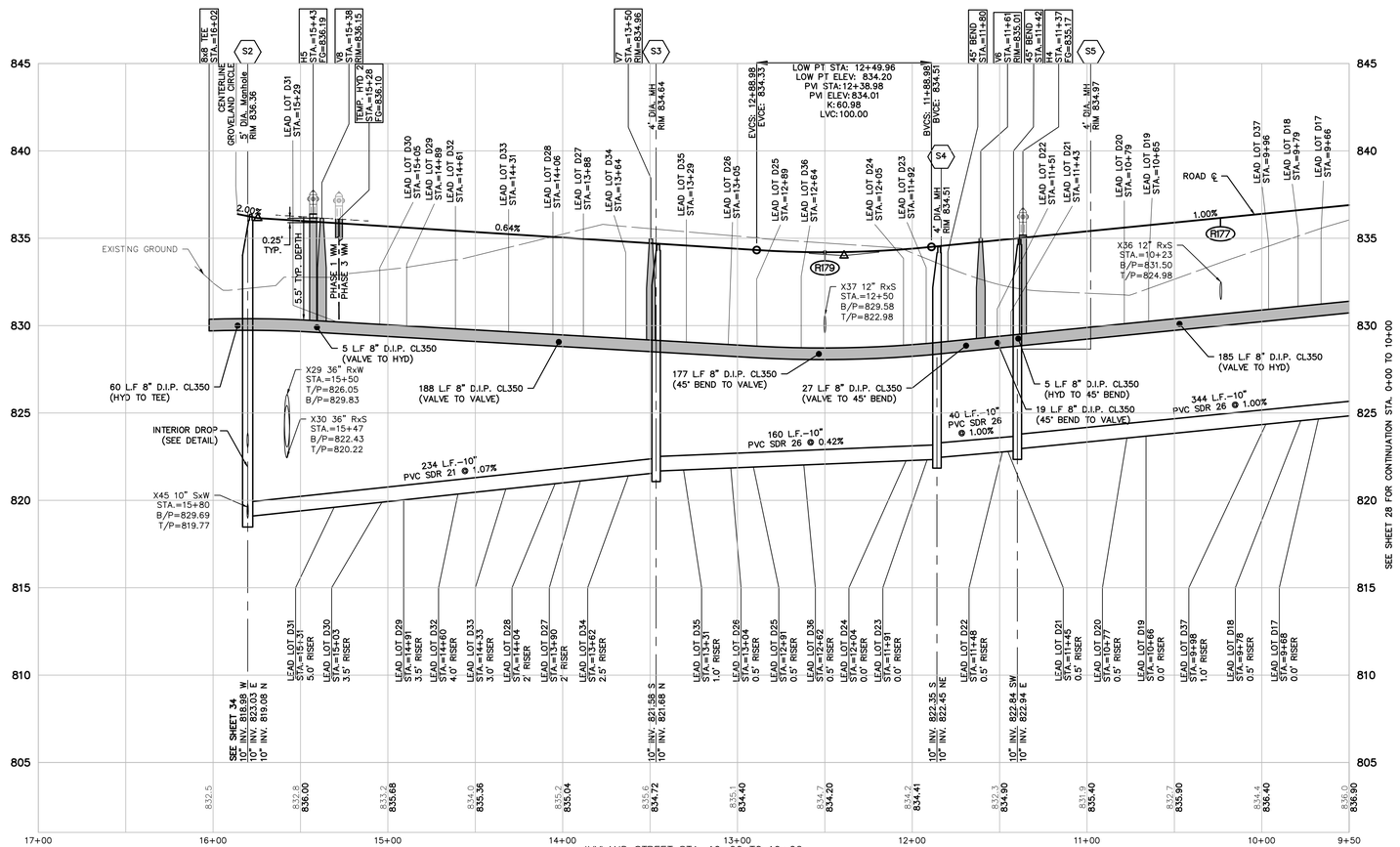
SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 28	





KEYMAP
1" = 800'



IVYLAND STREET STA. 10+00 TO 16+02
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 1

WATER MAIN = PHASE 1 / PHASE 3 (REFER TO PROFILE)

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

QUANTITIES:

WATERMAIN:
666 L.F. 8" D.I.P. CL350 (TEE TO VALVE)
(2) HYDRANT ASSEMBLIES
(3) 8" VALVES
(1) TEMP. HYDRANT (PH. 1)

SANITARY:
234 L.F. 10" PVC SDR 21
544 L.F. 10" PVC SDR 26
(3) 4' MANHOLES
(1) 5' MANHOLES

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

IVYLAND STREET PLAN AND PROFILE STA. 10+00 TO 16+02

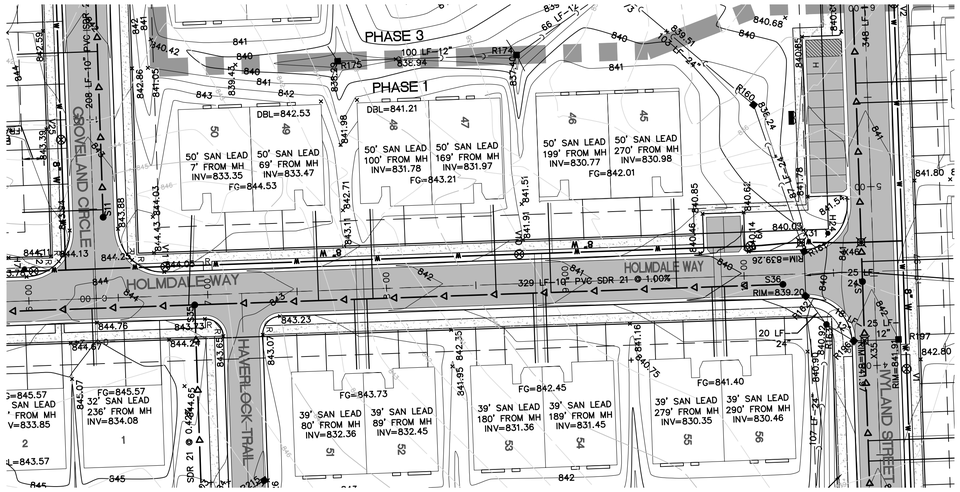
DATE
SEPTEMBER 13, 2016

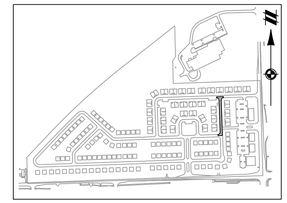
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

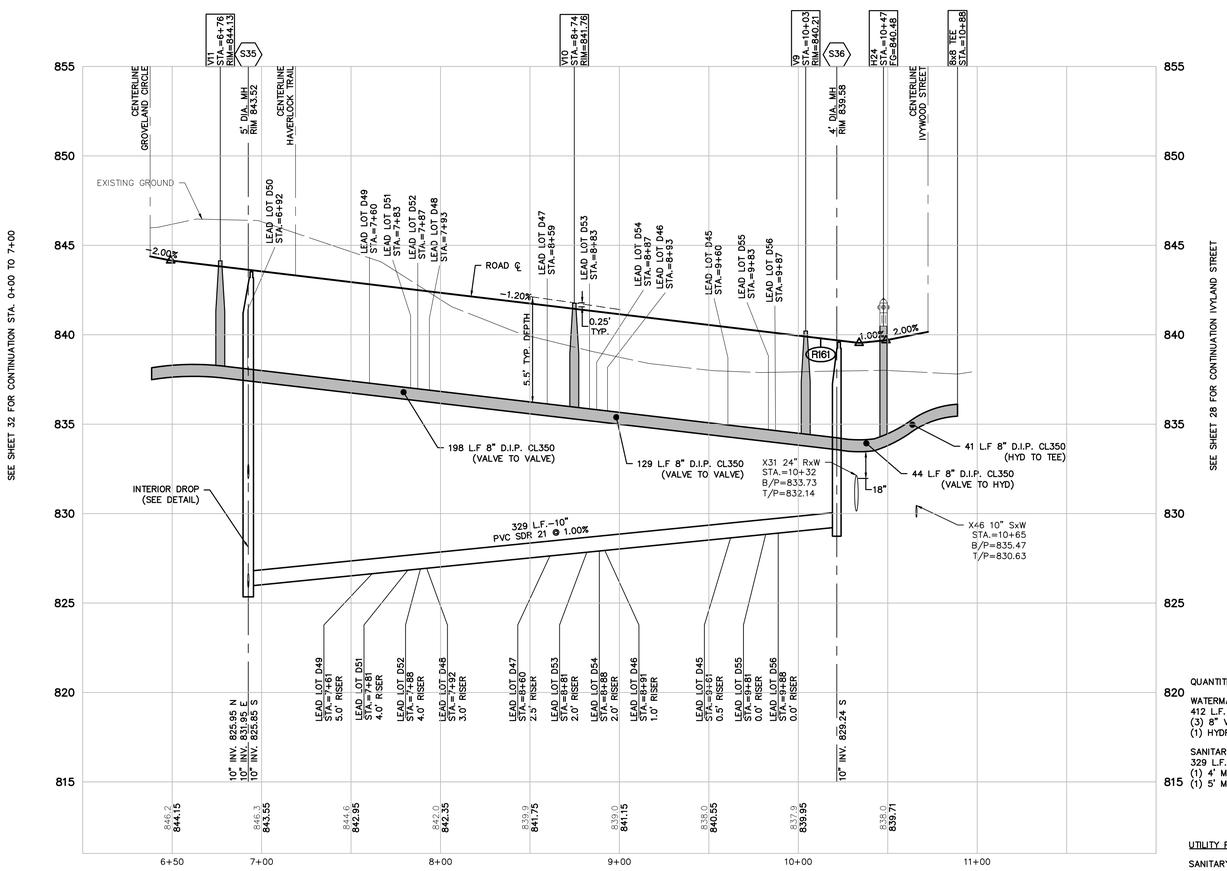
SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 29	





KEYMAP
1" = 800'



HOLMDALE WAY STA. 7+00 TO 10+97
VERT: 1"=4'
HORZ: 1"=40'

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

QUANTITIES:

WATERMAIN:
412 L.F. 8" D.I.P. CL350 (TEE TO V5)
(3) 8" VALVES
(1) HYDRANT ASSEMBLIES

SANITARY:
329 L.F. 10" PVC SDR 21
(1) 4' MANHOLES
(1) 5' MANHOLES

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 1

WATER MAIN = ALL PHASE 1

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

HOLMDALE WAY PLAN AND PROFILE
STA. 7+00 TO 10+97

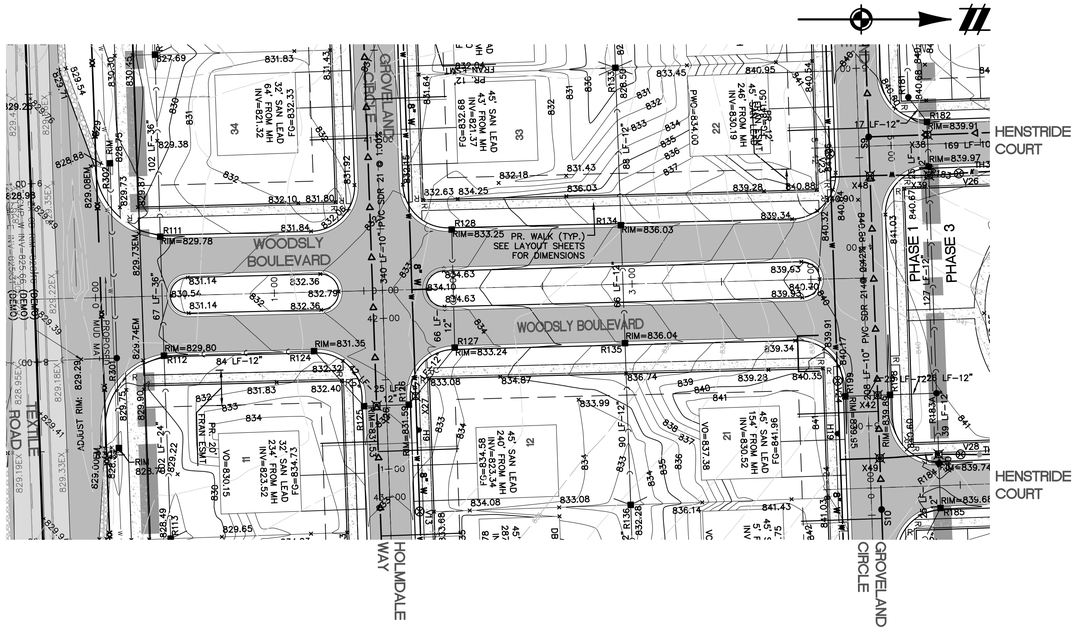
DATE
SEPTEMBER 13, 2016

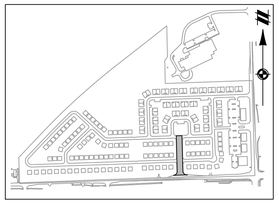
11/19/2015: PER WCRC
01/18/2016: TWP, WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

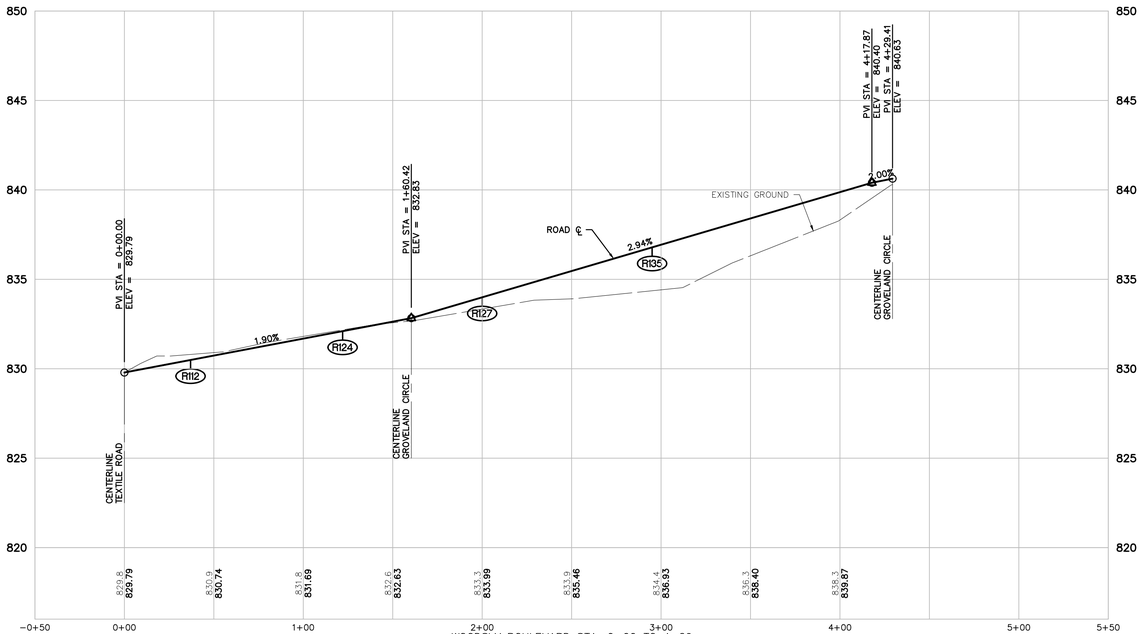
SCALE 0 20 40
1" = 40 FEET

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 30





KEYMAP
1" = 800'



NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

WOODSLY BOULEVARD PLAN AND PROFILE STA. 0+00 TO 4+29

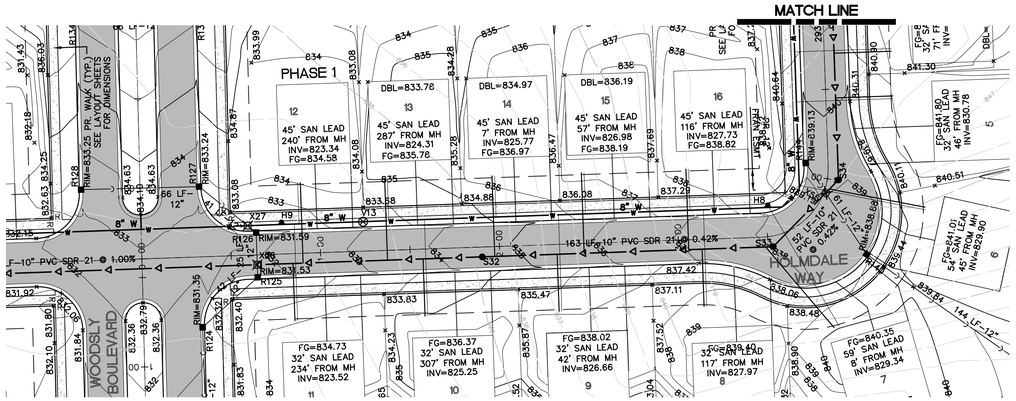
DATE
SEPTEMBER 13, 2016

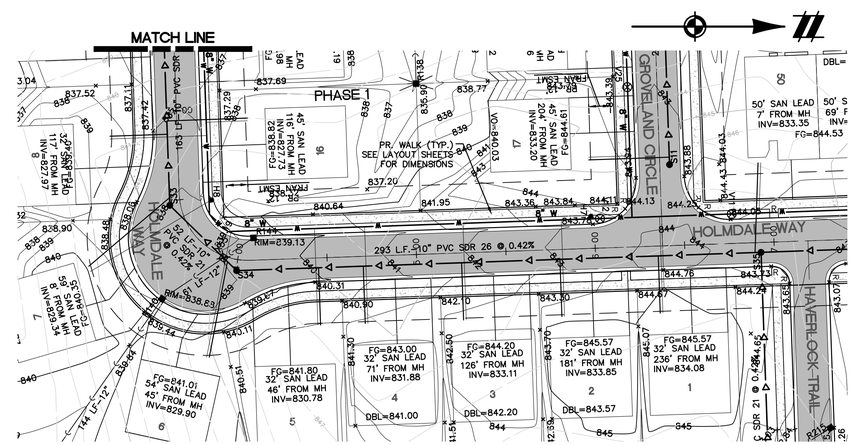
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

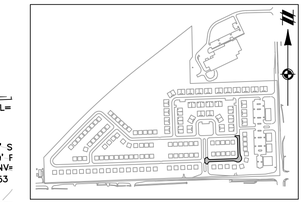
REVISIONS

SCALE 0 20 40
1" = 40 FEET

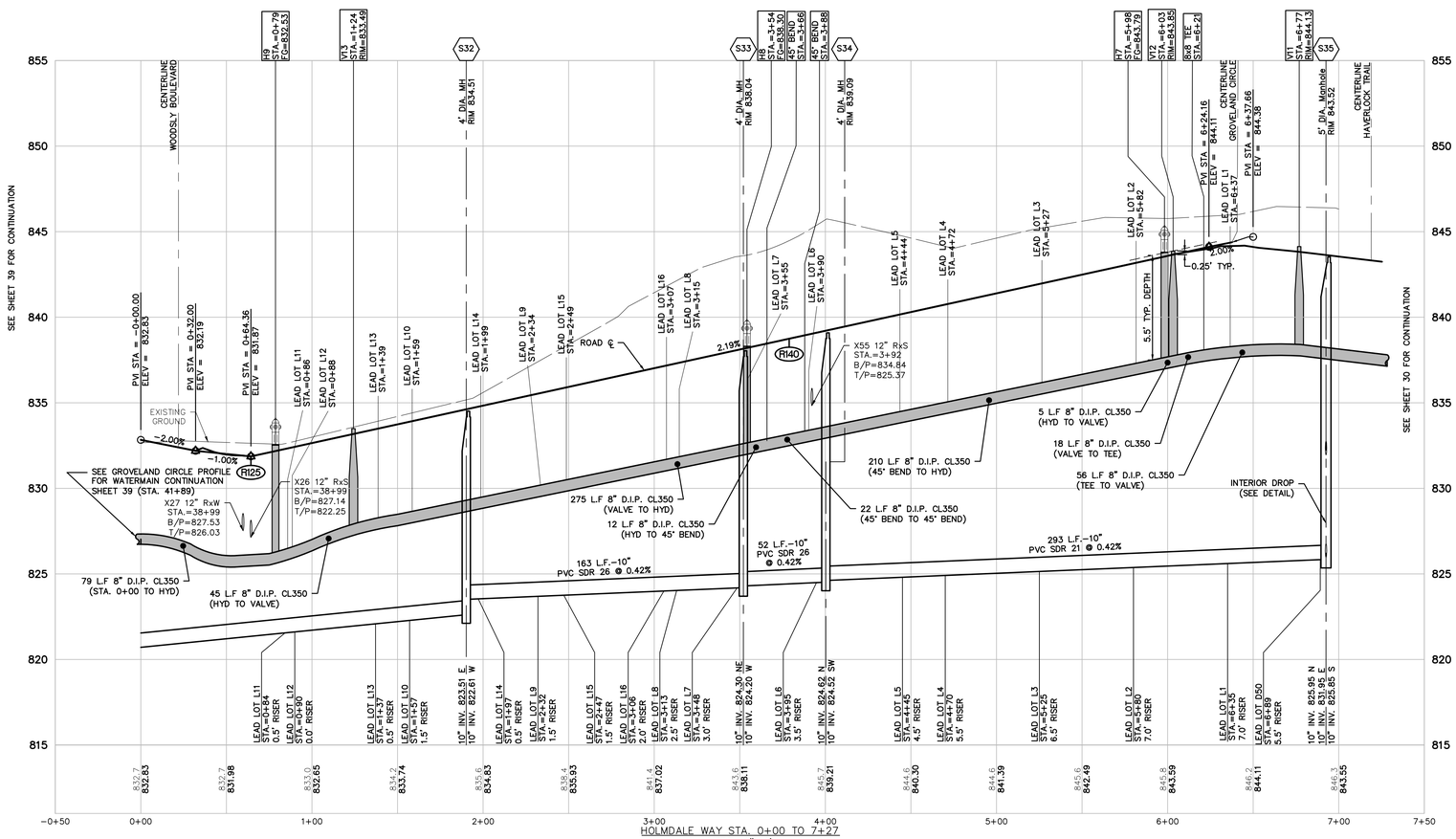
DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 31	







KEYMAP
1" = 800'



HOLMDALE WAY STA. 0+00 TO 7+27
VERT: 1"=4'
HORZ: 1"=40'

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

QUANTITIES:

WATERMAIN:
722 L.F. 8" D.I.P. CL350 (STA. 0+00 TO VALVE)
(3) HYDRANT ASSEMBLIES
(2) 8" VALVES

SANITARY:
293 L.F. 10" PVC SDR 21
215 L.F. 10" PVC SDR 26
(3) 4' MANHOLES

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 1

WATER MAIN = ALL PHASE 1

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

HOLMDALE WAY PLAN AND PROFILE
STA. 0+00 TO 7+27

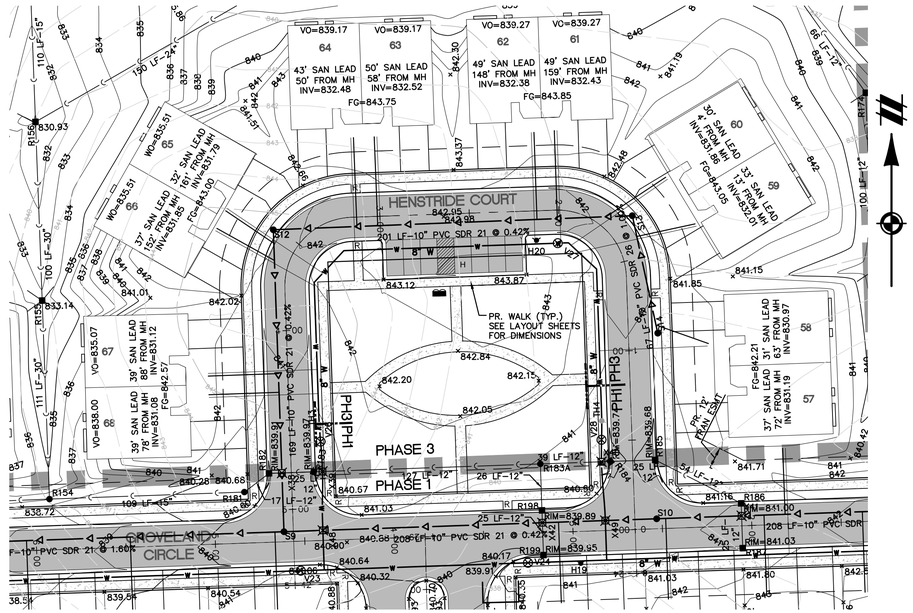
DATE
SEPTEMBER 13, 2016

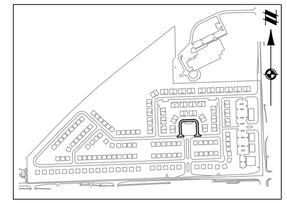
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP./WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBD

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 32	





KEYMAP
1" = 800'

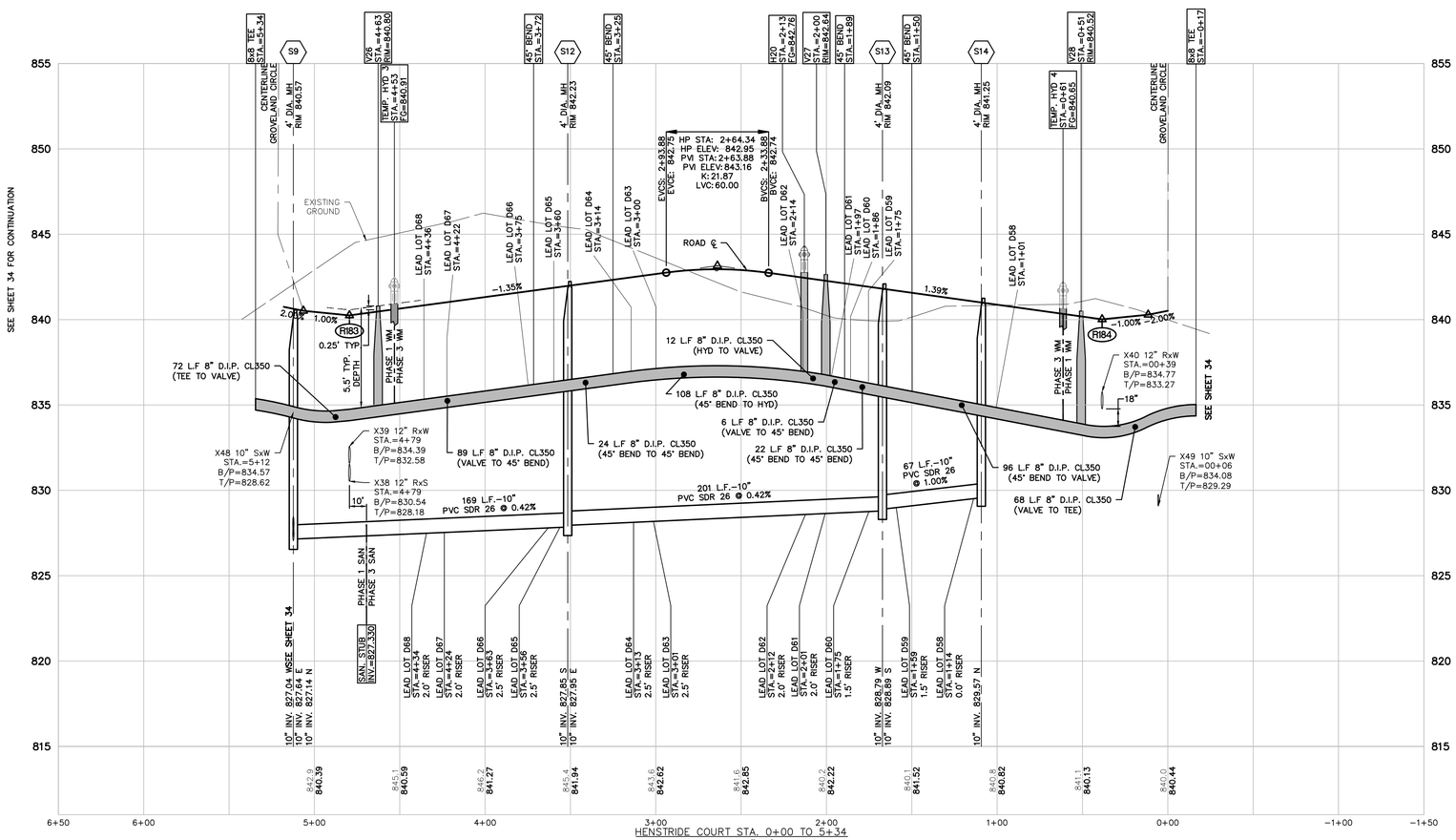
811 Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000



HENSTRIDE COURT STA. 0+00 TO 5+34
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = PHASE 1 / PHASE 3 (REFER TO PROFILE)

WATER MAIN = PHASE 1 / PHASE 3 (REFER TO PROFILE)

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

QUANTITIES:

WATERMAIN:
497 L.F. 8" D.I.P. CL350 (TEE TO TEE)
(1) HYDRANT ASSEMBLY
(3) 8" VALVES
(2) TEMP. HYDRANT (PH. 1)

SANITARY:
437 L.F. 10" PVC SDR 26
(4) 4' MANHOLES

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

HENSTRIDE COURT PLAN AND PROFILE STA. 0+00 TO 5+34

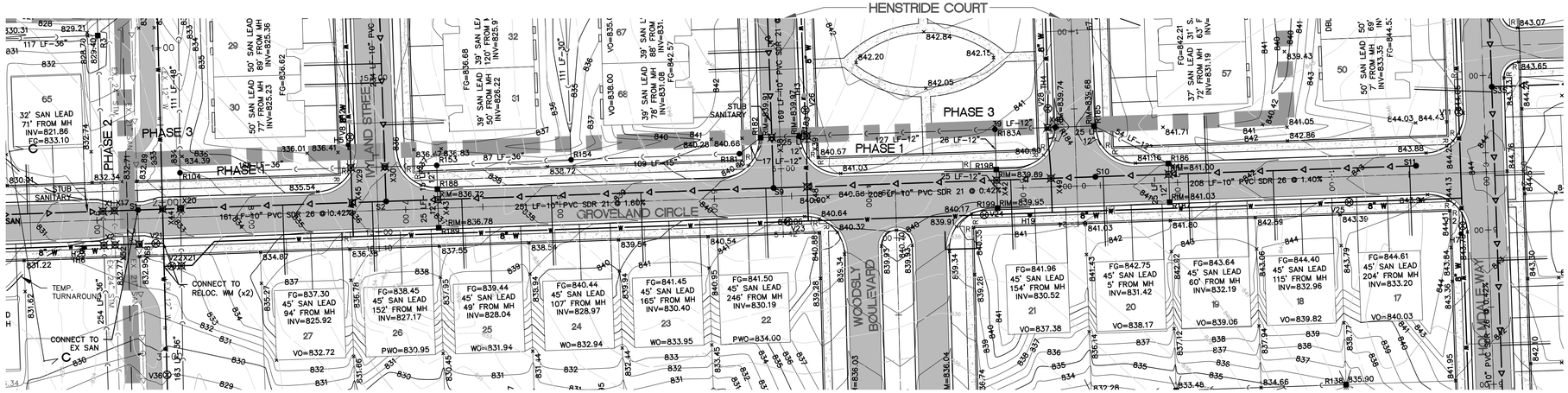
DATE
SEPTEMBER 13, 2016

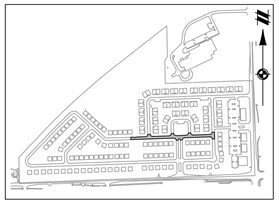
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		
SHEET NO.	33		





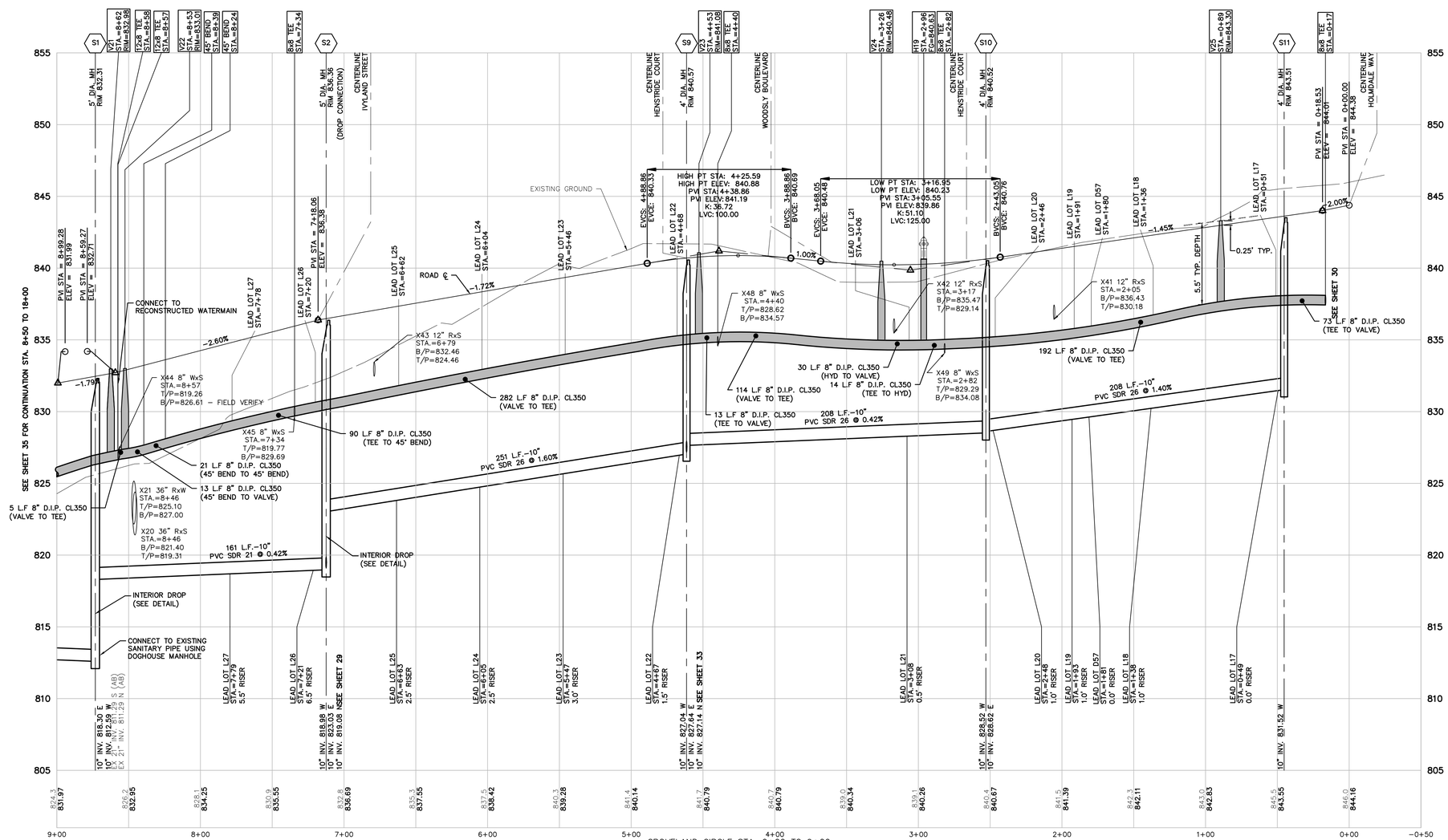
KEYMAP
1" = 800'

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT



UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 1

WATER MAIN = ALL PHASE 1

QUANTITIES:

WATERMAIN:
847 L.F. 8" D.I.P. CL350 (VALVE TO TEE)
(1) HYDRANT ASSEMBLY
(4) 8" VALVES

SANITARY:
161 L.F. 10" PVC SDR 21
667 L.F. 10" PVC SDR 26
(3) 4' MANHOLES
(2) 5' MANHOLES

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

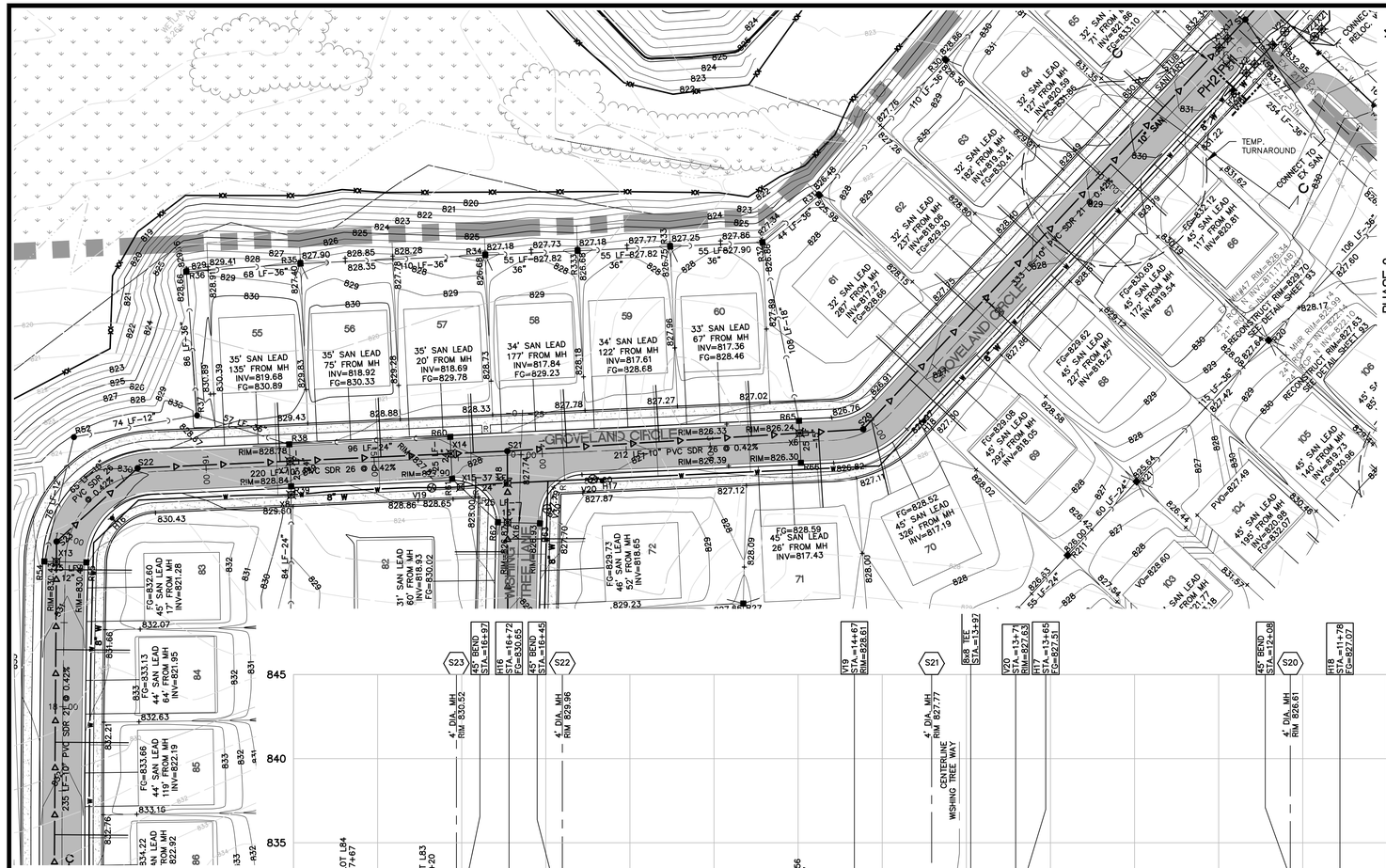
GROVELAND CIRCLE PLAN AND PROFILE STA. 0+00 TO 9+00

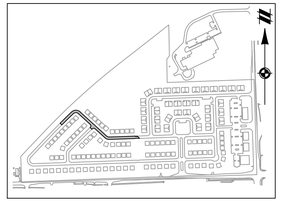
DATE
SEPTEMBER 13, 2016

REVISIONS
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

SCALE 0 20 40
1" = 40 FEET

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 34





KEYMAP
1" = 800'

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

EXISTING 1' CONTOUR	EXISTING WELL
EXISTING 5' CONTOUR	EXISTING SIGN
EXISTING WETLAND LINE	EXISTING UTILITY POLE
EXISTING OVERHEAD ELECTRICAL LINE	EXISTING FIRE HYDRANT
EXISTING OVERHEAD TELEPHONE LINE	EXISTING CABLE MARKER
EXISTING FENCE	EXISTING TELEPHONE RISER
EXISTING CURB AND GUTTER	PROPOSED 1' CONTOUR
BOUNDARY LINE	PROPOSED 5' CONTOUR
EXISTING STORM	PROPOSED STORM SEWER
EXISTING WATER MAIN	PROPOSED SANITARY
EXISTING SANITARY	PROPOSED WATER MAIN
EXISTING GAS	PROPOSED LOT
EXISTING RAILROAD	PROPOSED SETBACK
EXISTING FLOOD ZONE	PROPOSED EASEMENT
	PROPOSED R.O.W.
SECTION CORNER	PROPOSED BACK/EDGE CURB
EXISTING SANITARY MANHOLE	PROPOSED CENTERLINE
EXISTING CATCH BASIN/INLET	PROPOSED CATCH BASIN/INLET
EXISTING WATER MANHOLE	PROPOSED OUTLET
EXISTING WETLAND	PROPOSED MANHOLE
EXISTING RIP-RAP	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = PHASE 1 / PHASE 2 (REFER TO PROFILE)

WATER MAIN = PHASE 1 / PHASE 2 (REFER TO PROFILE)

QUANTITIES:

WATERMAIN:
854 L.F. 8" D.I.P. CL350 (V21 TO 45')
(4) HYDRANT ASSEMBLIES
(3) 8" VALVES
(1) TEMP. HYDRANT (PH. 1)

SANITARY:
333 L.F. 10" PVC SDR 21
497 L.F. 10" PVC SDR 26
(4) 4' MANHOLES

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

GROVELAND CIRCLE PLAN AND PROFILE STA. 8+50 TO 18+00

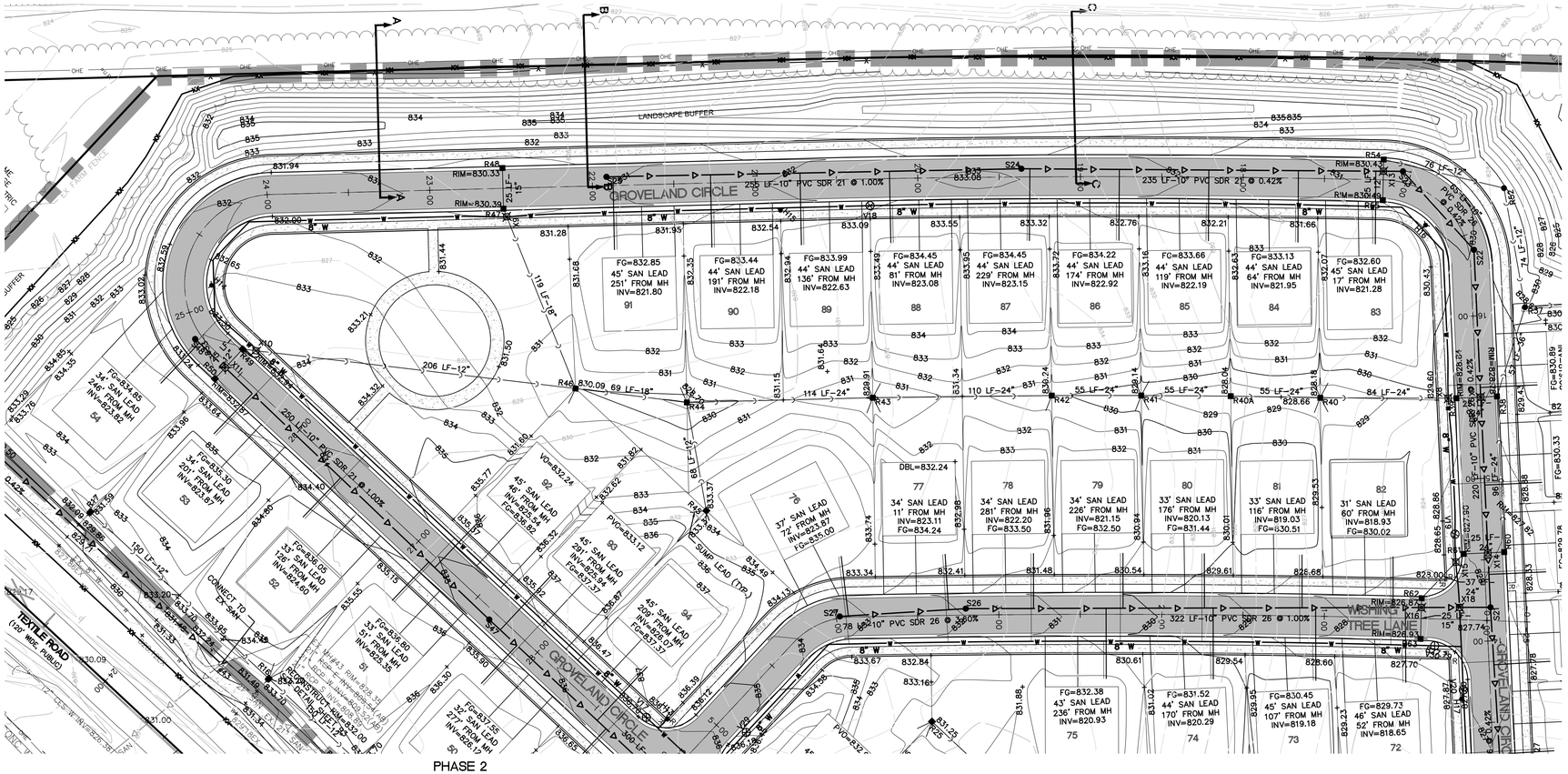
DATE
SEPTEMBER 13, 2016

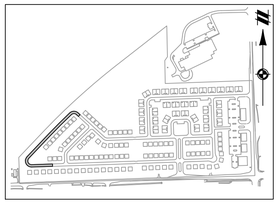
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 35





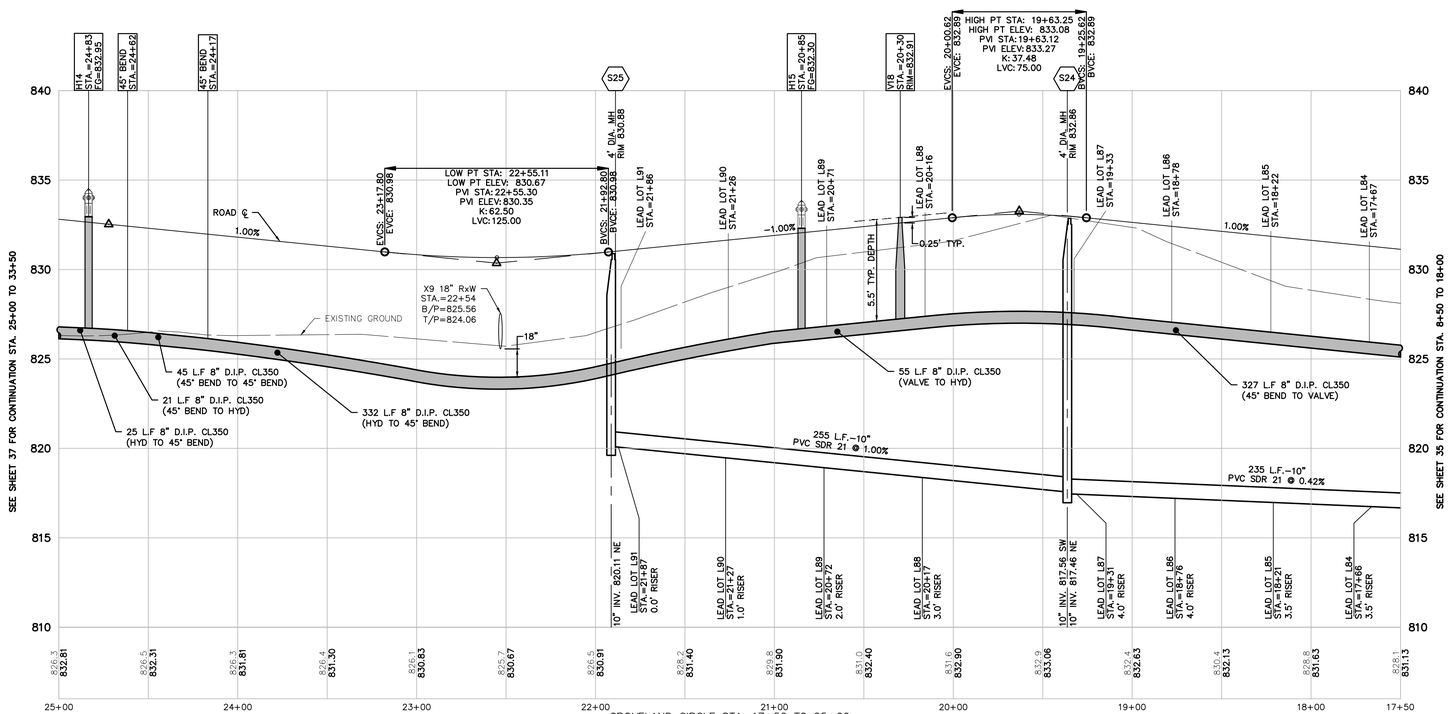
KEYMAP
1" = 800'

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT



UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 2

WATER MAIN = ALL PHASE 2

QUANTITIES:

WATERMAIN:
805 L.F. 8" D.I.P. CL350 (45° TO 45°)
(2) HYDRANT ASSEMBLIES
(1) 8" VALVES

SANITARY:
490 L.F. 10" PVC SDR 21
(2) 4' MANHOLES

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

GROVELAND CIRCLE PLAN AND PROFILE STA. 17+50 TO 25+00

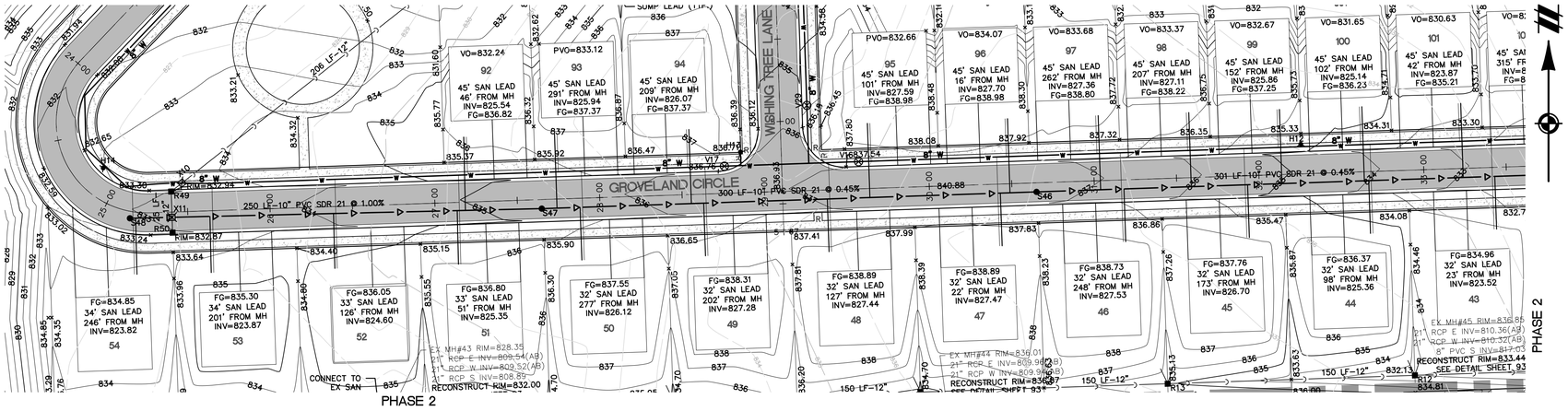
DATE
SEPTEMBER 13, 2016

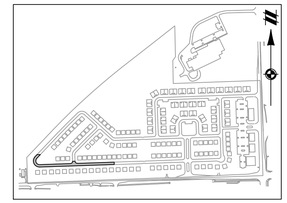
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR.	SK
CH.	SS
P.M.	MB
BOOK	
JOB	13001886.10
SHEET NO.	36





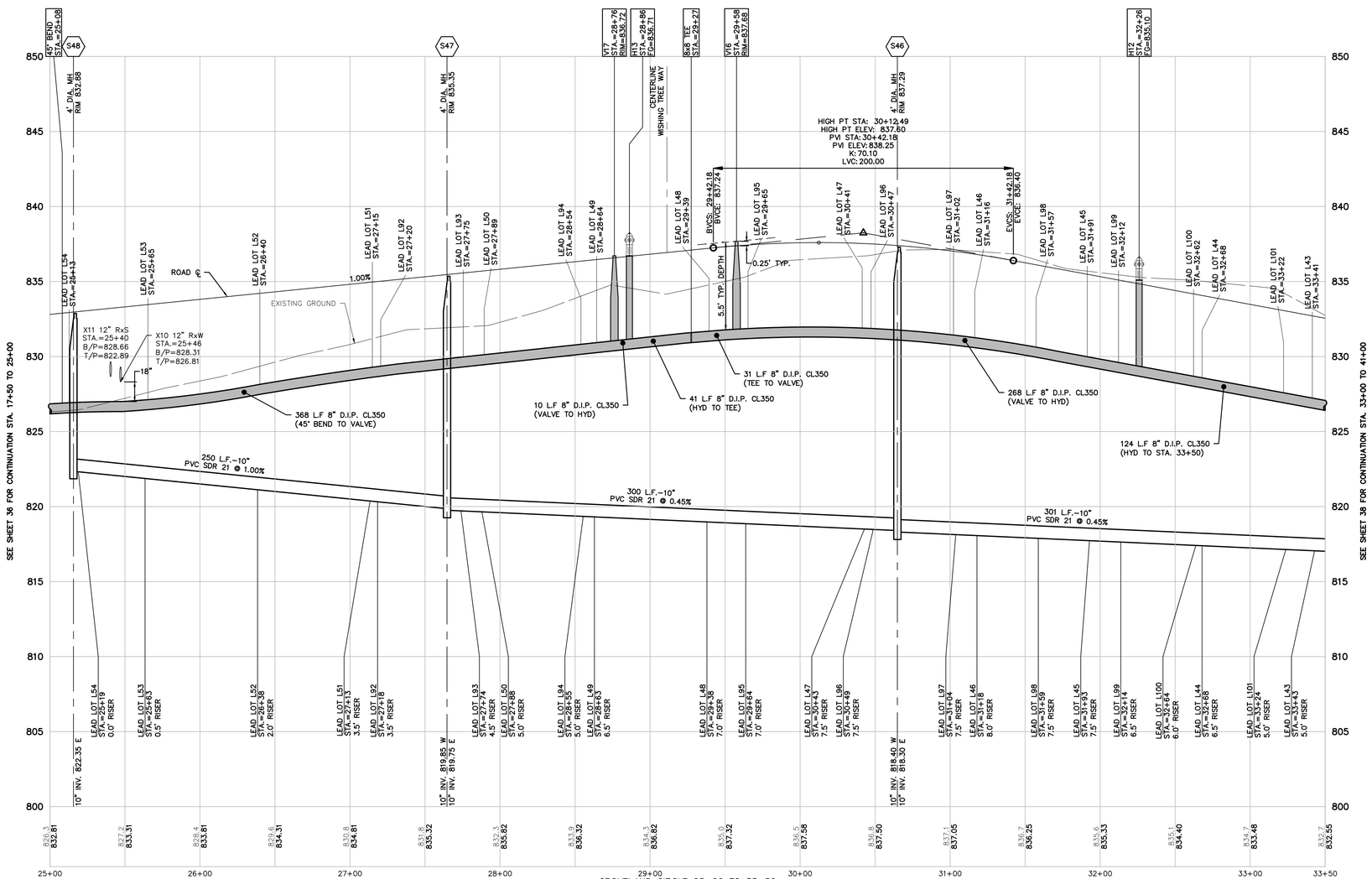
KEYMAP
1" = 800'

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C C	EXISTING STORM
W	EXISTING WATER MAIN
S S	EXISTING SANITARY
G G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C C	PROPOSED STORM SEWER
S S	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT



GROVELAND CIRCLE 25+00 TO 33+50
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 2

WATER MAIN = ALL PHASE 2

QUANTITIES:

WATERMAIN:
842 L.F. 8" D.I.P. CL350
(45° TO STA. 33+50)
(2) HYDRANT ASSEMBLIES
(2) 8" VALVES

SANITARY:
851 L.F. 10" PVC SDR 21
(3) 4' MANHOLES

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

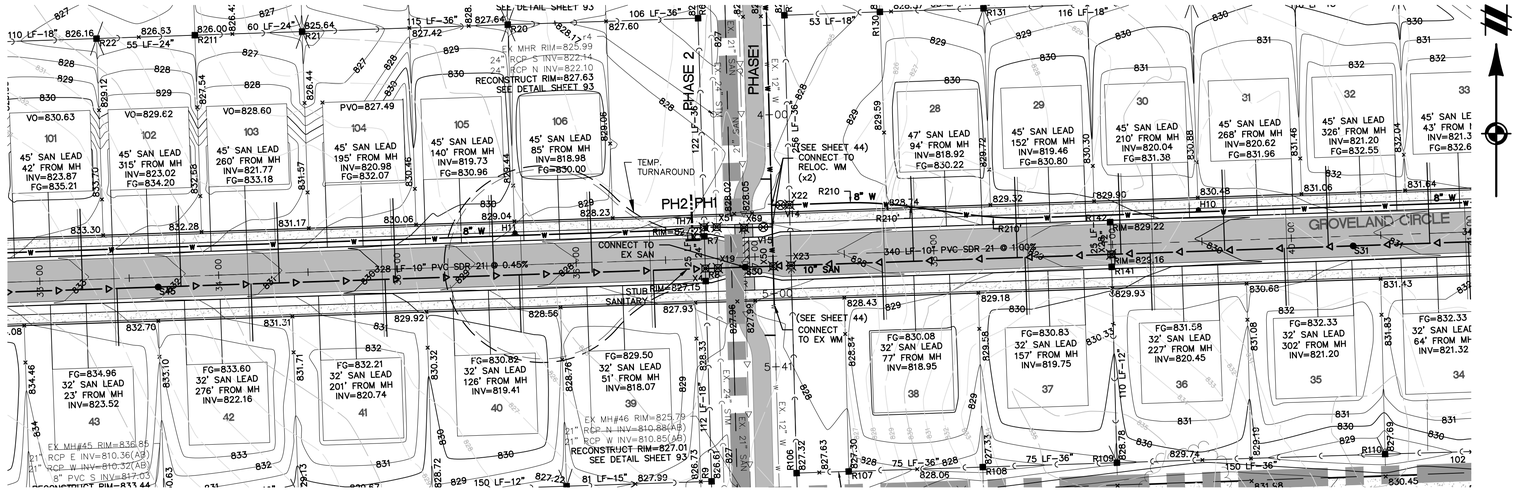
GROVELAND CIRCLE PLAN AND PROFILE STA. 25+00 TO 33+50

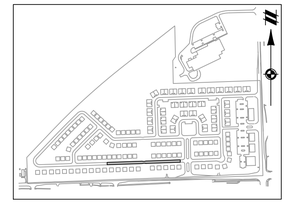
DATE
SEPTEMBER 13, 2016

REVISIONS
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 37	





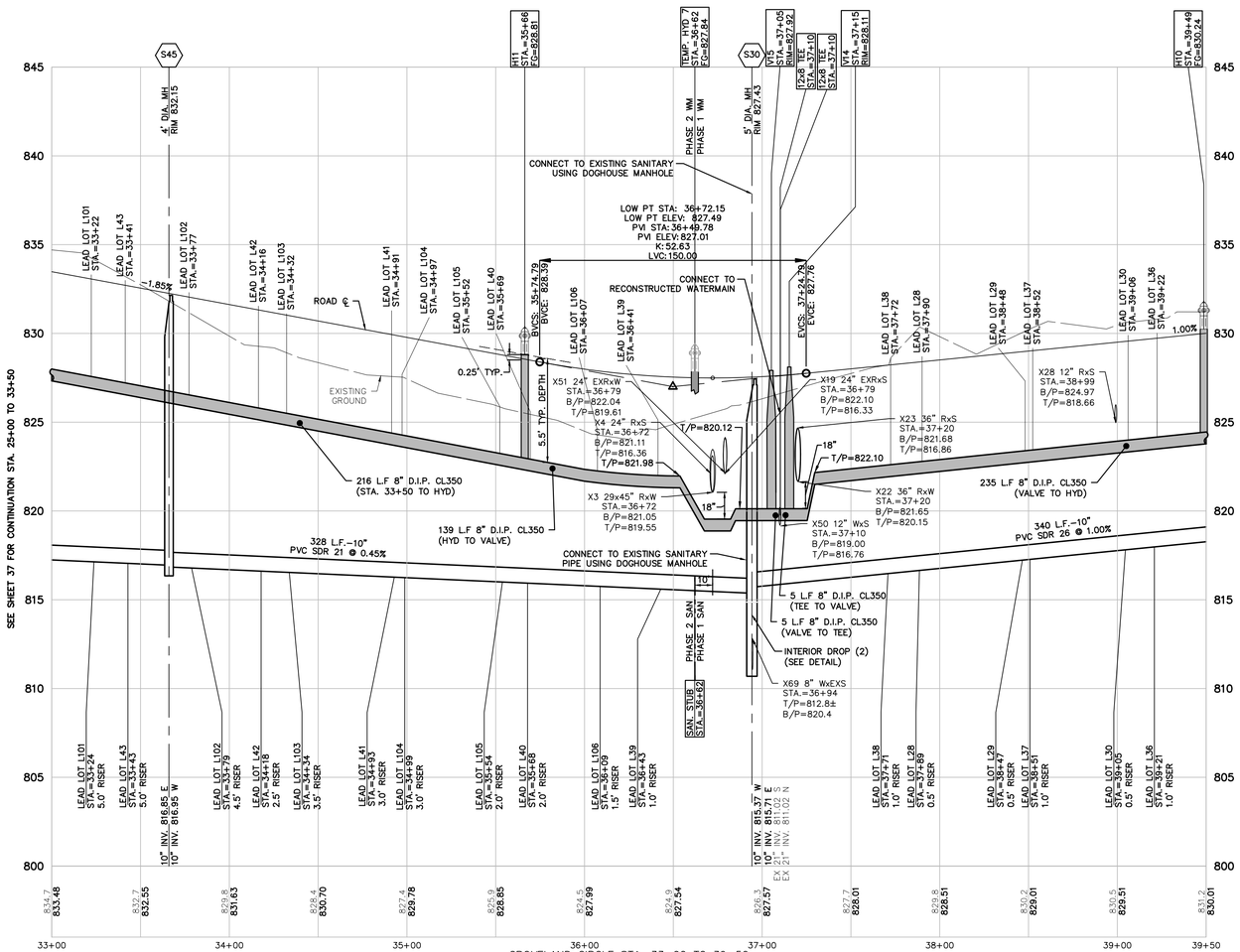
KEYMAP
1" = 800'

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
S	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
S	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT



GROVELAND CIRCLE STA. 33+00 TO 39+50
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = PHASE 1 / PHASE 2 (REFER TO PROFILE)

WATER MAIN = PHASE 1 / PHASE 2 (REFER TO PROFILE)

QUANTITIES:

WATERMAIN:
600 L.F. 8" D.I.P. CL350
(STA. 33+50 TO HYD)
(2) HYDRANT ASSEMBLIES
(2) 8" VALVES
(1) TEMP. HYDRANT (PH. 1)

SANITARY:
328 L.F. 10" PVC SDR 21
320 L.F. 10" PVC SDR 26
(1) 4' MANHOLES
(1) 5' MANHOLES

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

GROVELAND CIRCLE PLAN AND PROFILE STA. 33+00 TO 39+50

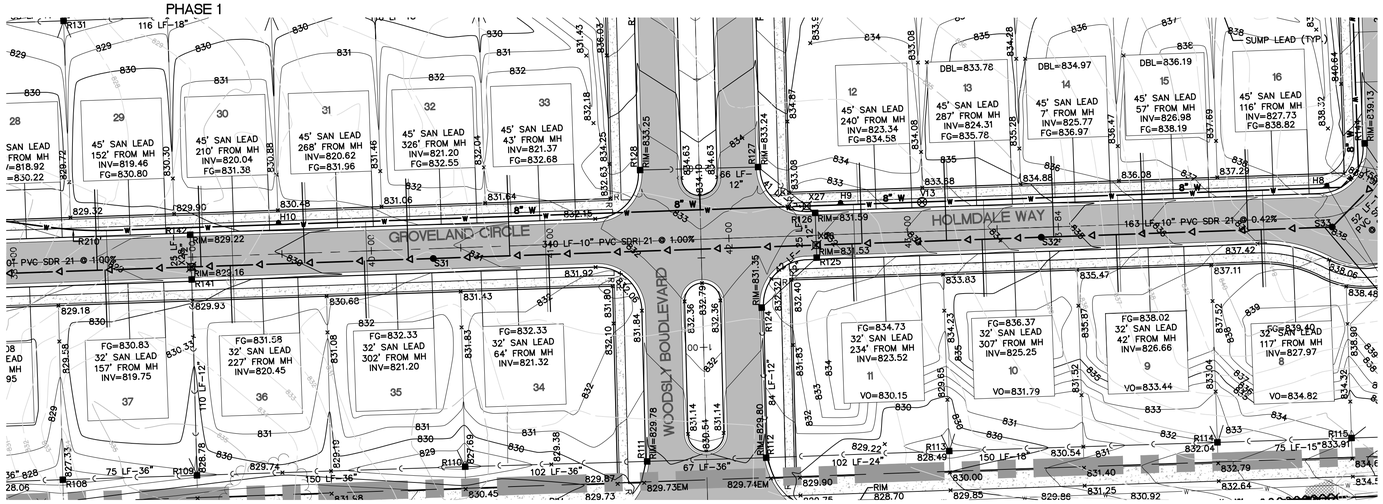
DATE
SEPTEMBER 13, 2016

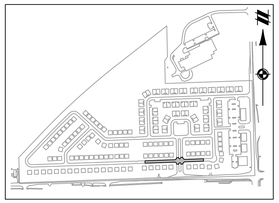
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

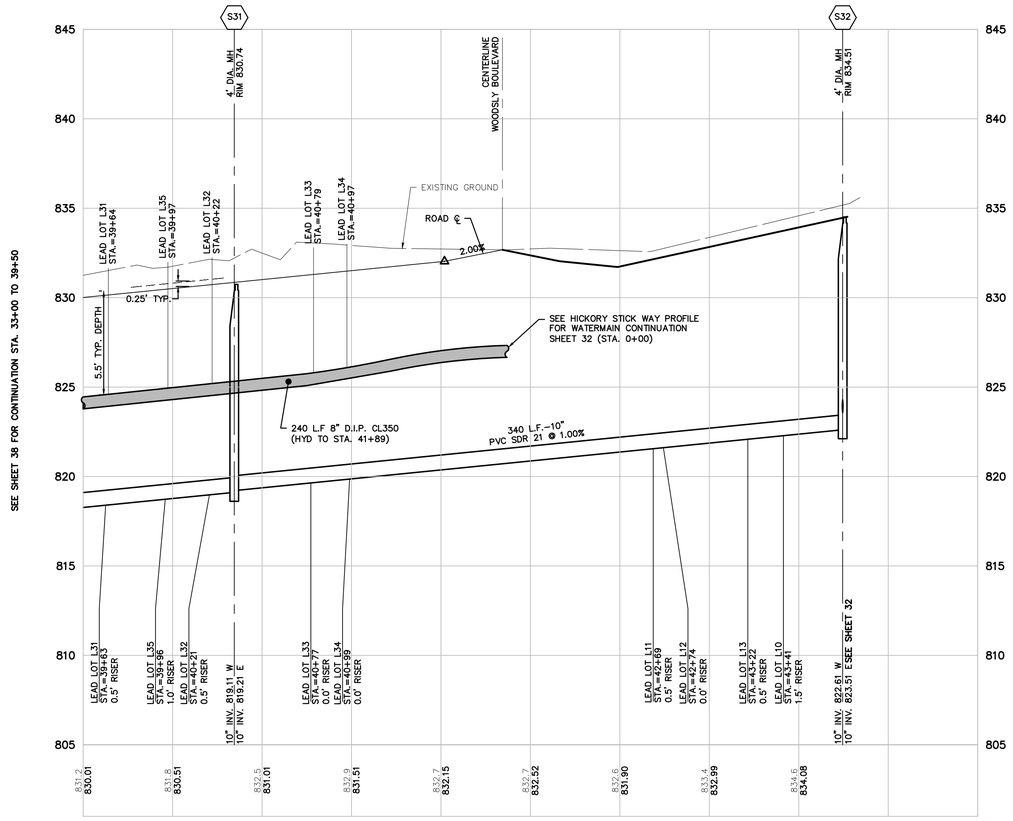
SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 38	





KEYMAP
1" = 800'



GROVELAND CIRCLE STA. 39+50 TO 43+76
VERT: 1"=4'
HORZ: 1"=40'

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 1

WATER MAIN = ALL PHASE 1

QUANTITIES:

WATERMAIN:
240 L.F. 8" D.I.P. CL350
(HYD TO STA. 41+89)

SANITARY:
340 L.F. 10" PVC SDR 21
(1) 4' MANHOLES

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

GROVELAND CIRCLE PLAN AND PROFILE STA. 39+50 TO 43+76

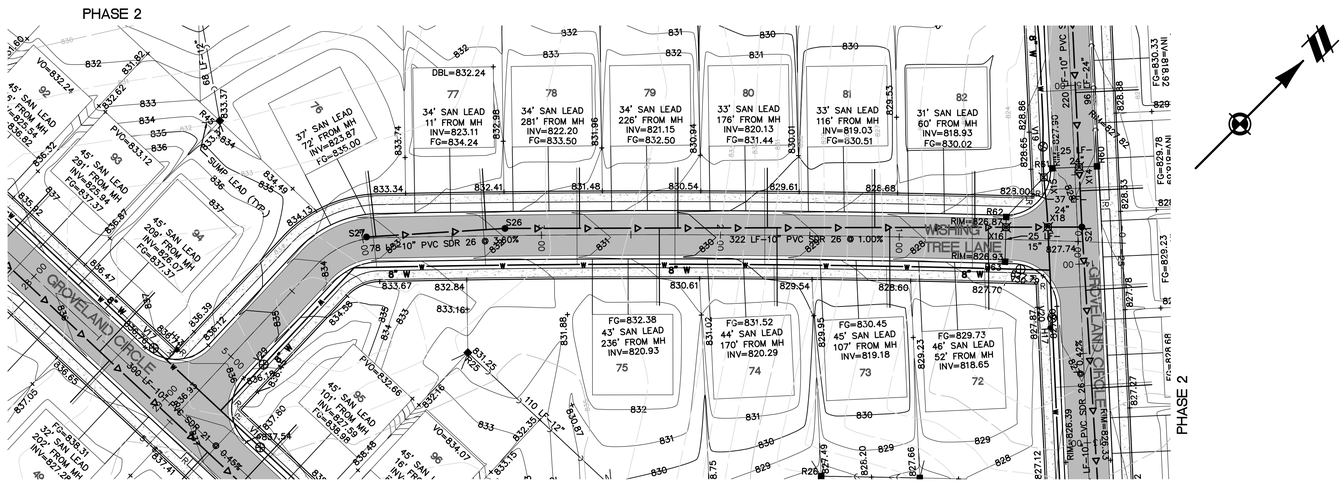
DATE
SEPTEMBER 13, 2016

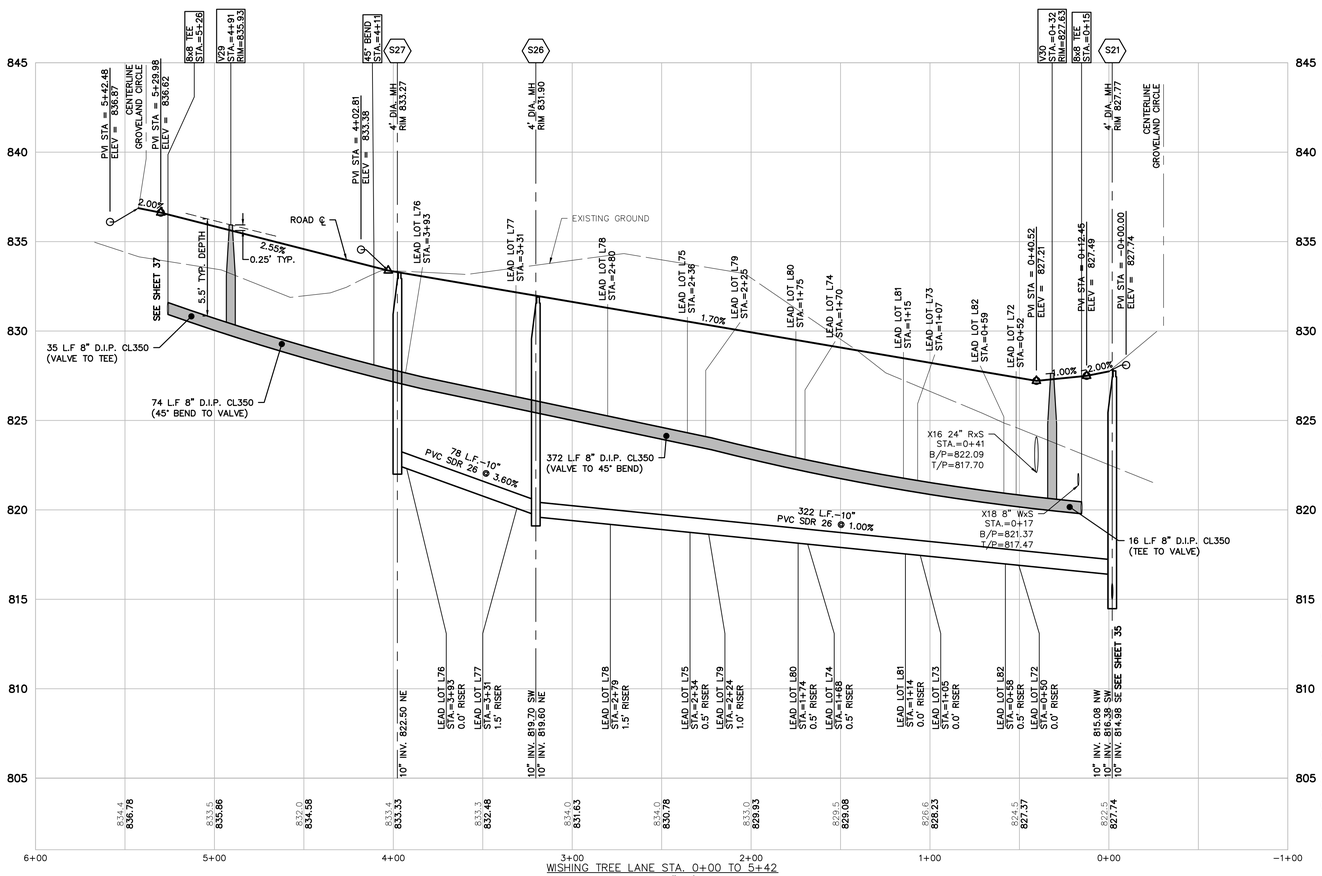
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

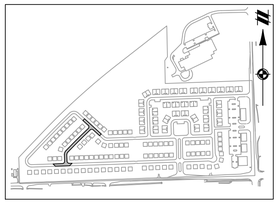
SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 39	





WISHING TREE LANE STA. 0+00 TO 5+42
VERT: 1"=4'
HORZ: 1"=40'



KEYMAP
1" = 800'

NOTE:
COMPACTION OF TRENCHES IS REQUIRED IN ROADWAY CORRIDORS (CLASS II GRANULAR BACKFILL AT 95% COMPACTION). ROADWAY CORRIDORS CONSTITUTE FRONT OF HOUSE TO FRONT OF HOUSE IN RESIDENTIAL DEVELOPMENTS.

MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

- 801 — EXISTING 1' CONTOUR
- 800 — EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- OHE — EXISTING OVERHEAD ELECTRICAL LINE
- OHT — EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- C — EXISTING STORM
- W — EXISTING WATER MAIN
- EXISTING SANITARY
- G — EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- 801 — PROPOSED 1' CONTOUR
- 800 — PROPOSED 5' CONTOUR
- C — PROPOSED STORM SEWER
- PROPOSED SANITARY
- W — PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- U.P. — EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- CATV — EXISTING CABLE MARKER
- T — EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 2

WATER MAIN = ALL PHASE 2

QUANTITIES:

WATERMAIN:
497 L.F. 8" D.I.P. CL350 (TEE TO TEE)
(2) 8" VALVES

SANITARY:
400 L.F. 10" PVC SDR 26
(3) 4' MANHOLES

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

WISHING TREE LANE PLAN AND PROFILE STA. 0+00 TO 5+42

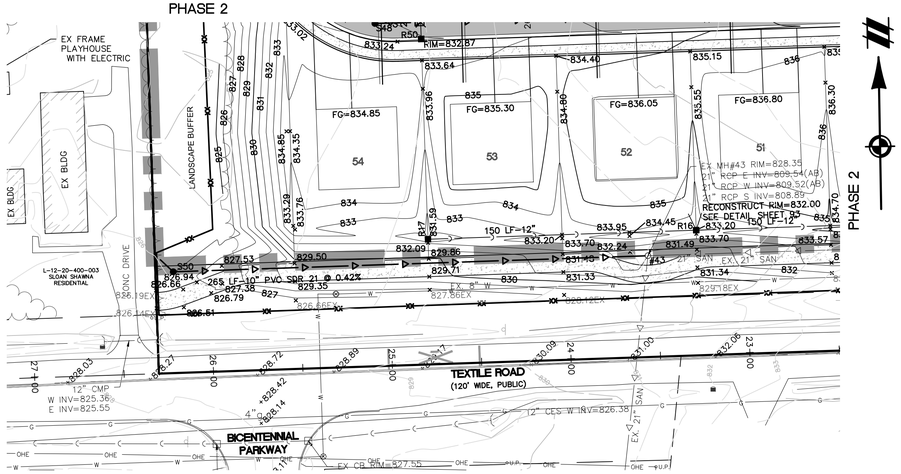
DATE
SEPTEMBER 13, 2016

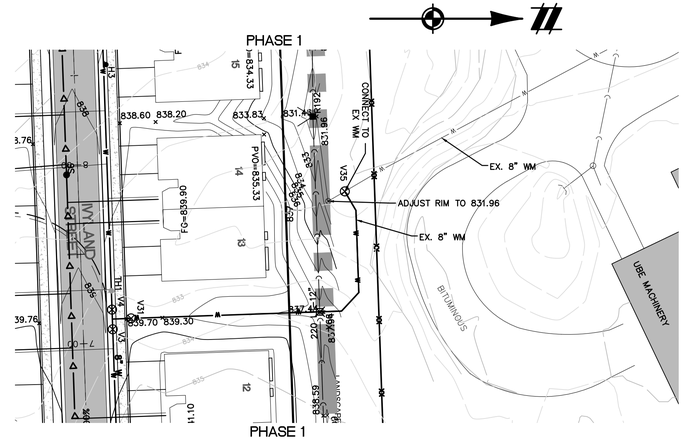
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

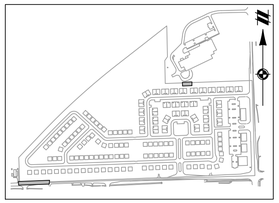
REVISIONS

SCALE 0 20 40
1" = 40 FEET

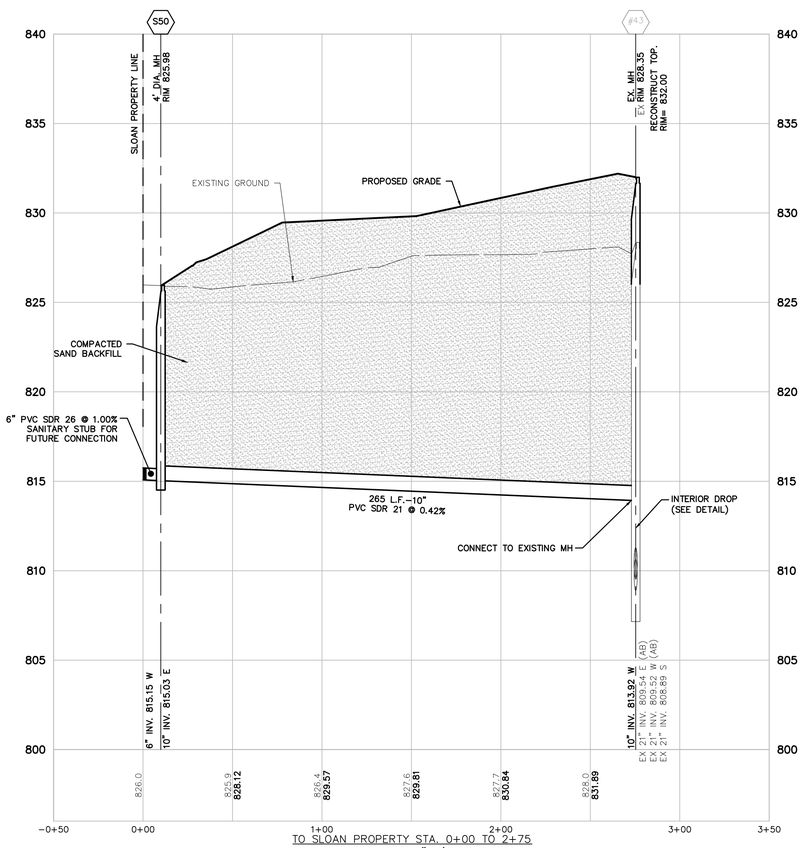
DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 40	







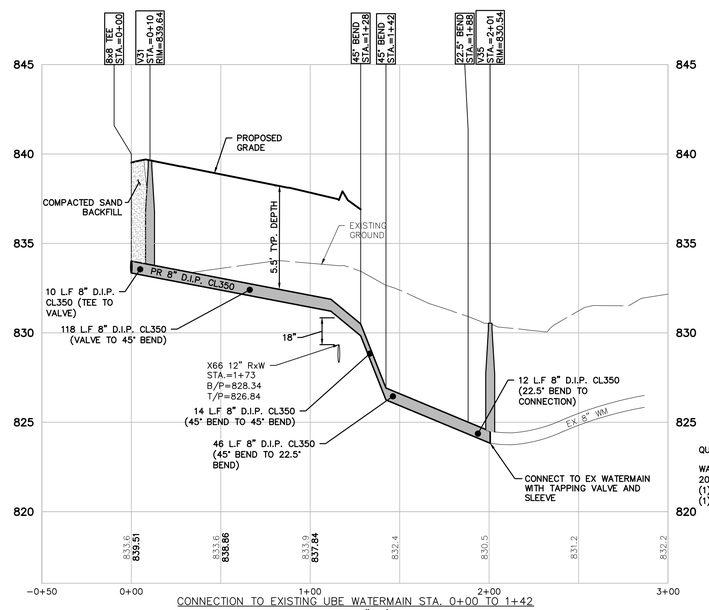
KEYMAP
1" = 800'



TO SLOAN PROPERTY STA. 0+00 TO 2+75
VERT: 1"=4'
HORZ: 1"=40'

QUANTITIES:

SANITARY:
265 L.F. 10" PVC SDR 21
(2) 4' MANHOLES



CONNECTION TO EXISTING UBE WATERMAIN STA. 0+00 TO 1+42
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = ALL PHASE 2 (LEFT)

WATER MAIN = ALL PHASE 1 (ABOVE)

NOTE: MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

QUANTITIES:

WATERMAIN:
200 L.F. 8" D.I.P. CL350 (TEE TO 45° BEND)
(1) 8" VALVE
(1) 8" TAPPING VALVE AND SLEEVE IN WELL

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK FINAL SITE PLAN
PLAN AND PROFILE – TEXTILE SAN EXTENSION & UBE WATER CONNECTION

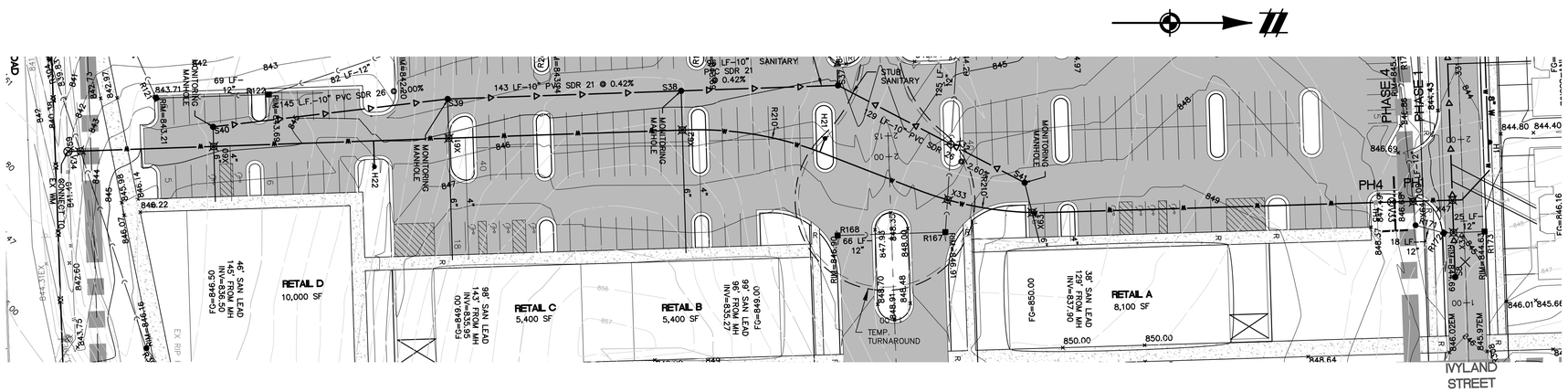
DATE
SEPTEMBER 13, 2016

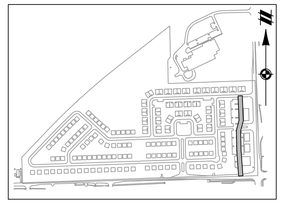
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP./WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		
SHEET NO.	41		



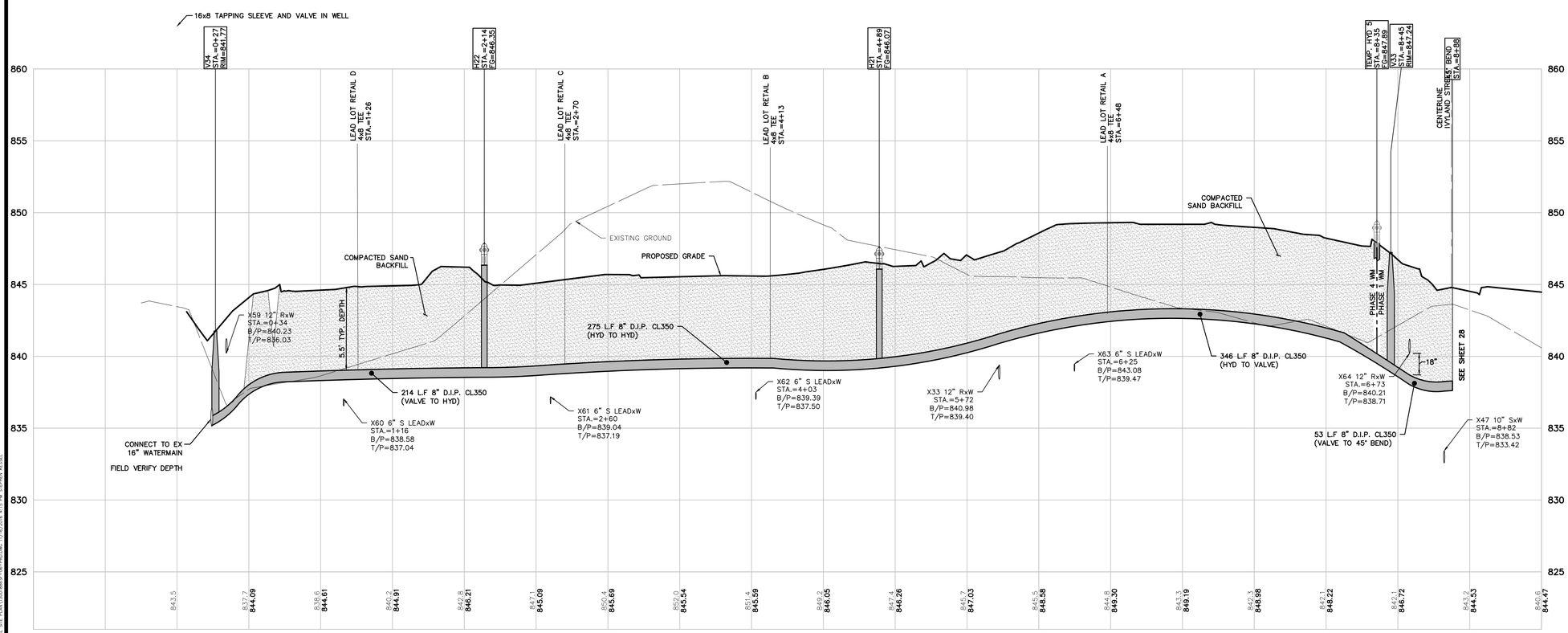


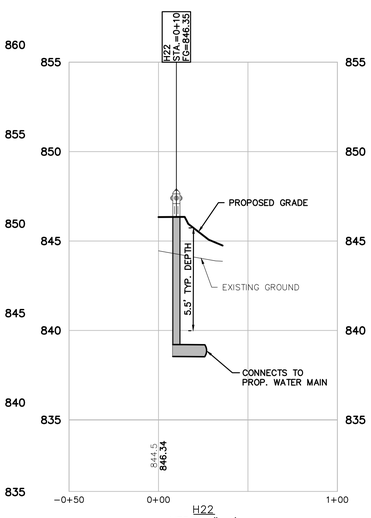
KEYMAP
1" = 800'

NOTE:
MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT





QUANTITIES:

WATERMAIN:
888 L.F. 8" D.I.P. CL350 (VALVE TO 45° BEND)
(2) HYDRANT ASSEMBLIES
(1) 8" VALVES
(1) 16"X8" TAPPING SLEEVE AND VALVE IN WELL
(1) TEMP. HYDRANT (PH. 1)

UTILITY PHASING NOTES: (THIS SHEET)

WATER MAIN = PHASE 1 / PHASE 4 (REFER TO PROFILE)

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

COMMERCIAL WATERMAIN PLAN AND PROFILE

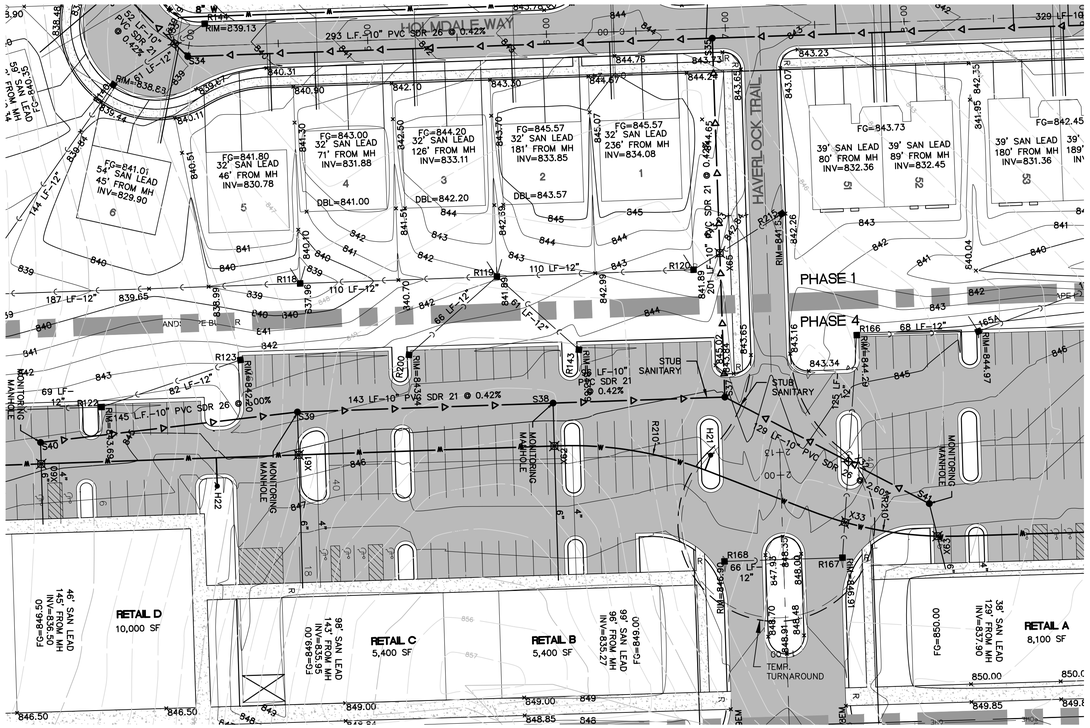
DATE
SEPTEMBER 13, 2016

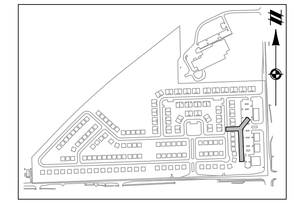
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP./WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 42

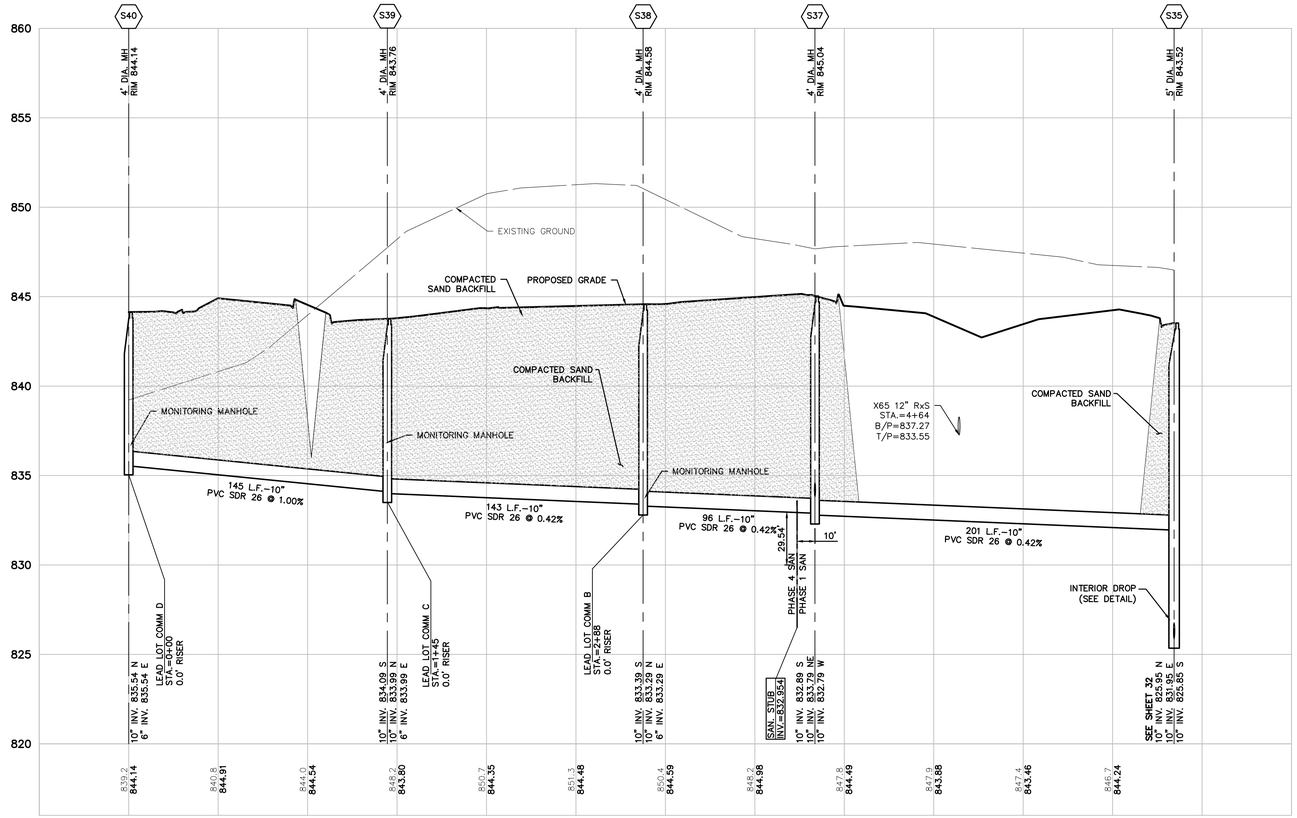




KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C C	EXISTING STORM
W	EXISTING WATER MAIN
S S	EXISTING SANITARY
G G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C C	PROPOSED STORM SEWER
S S	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT



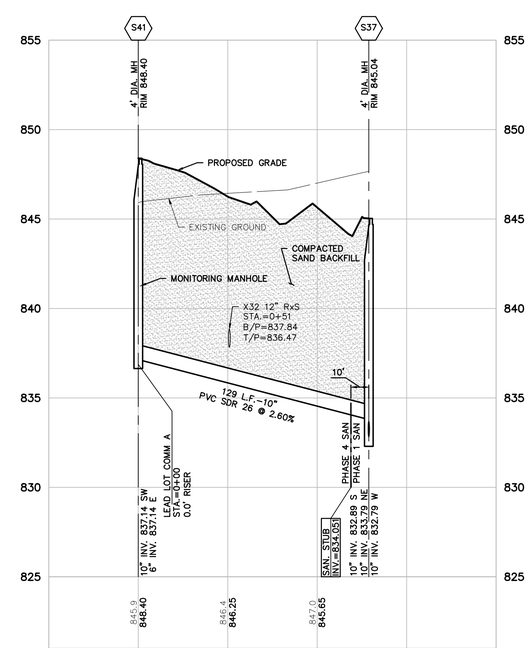
COMMERCIAL AND REAR YARD SANITARY S35-S40
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

SANITARY SEWER = PHASE 1 / PHASE 4 (REFER TO PROFILE)

QUANTITIES:

SANITARY:
585 L.F. 10" PVC SDR 26
(4) 4' MANHOLES



COMMERCIAL SANITARY S37-S41
VERT: 1"=4'
HORZ: 1"=40'

QUANTITIES:

SANITARY:
129 L.F. 10" PVC SDR 26
(1) 4' MANHOLES

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

COMMERCIAL SANITARY SEWER PLAN AND PROFILE

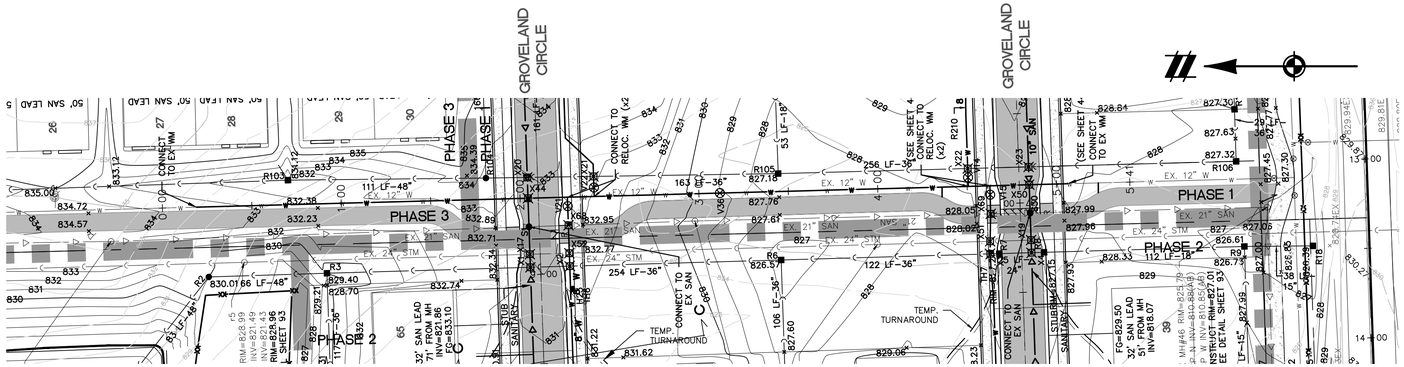
DATE
SEPTEMBER 13, 2016

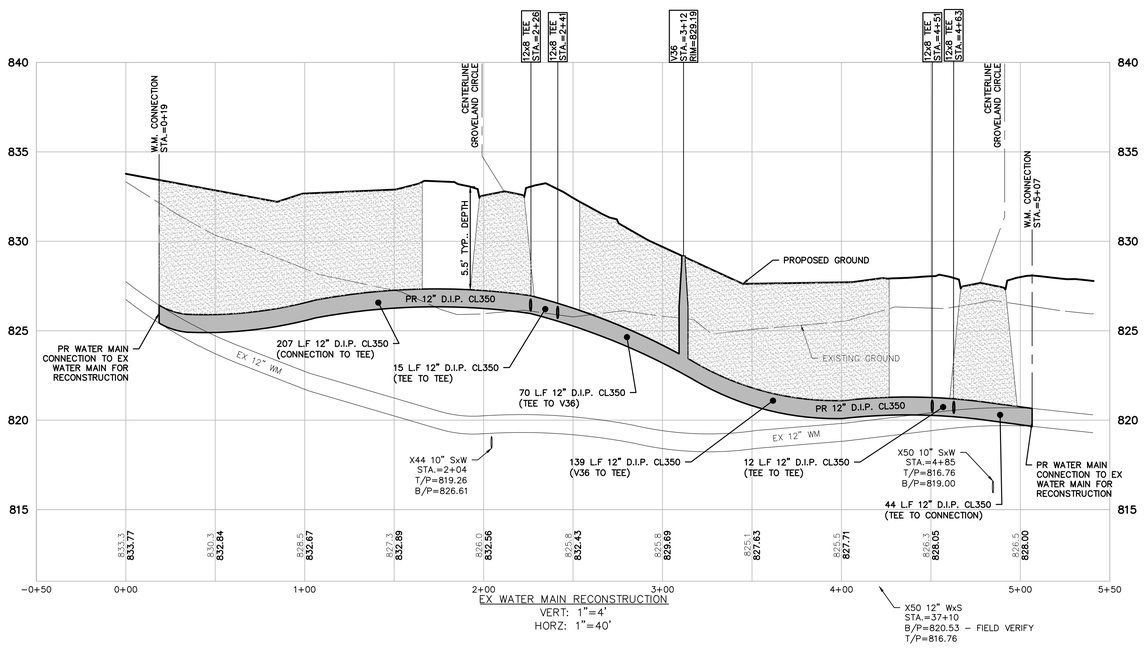
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR.	SK	CH. SS
P.M.	MB	
BOOK		
JOB	13001886.10	
SHEET NO.	43	





EX WATER MAIN RECONSTRUCTION
VERT: 1"=4'
HORZ: 1"=40'

NOTE: MAXIMUM WATER MAIN DEFLECTION OF 5° BETWEEN PIPE LENGTHS.

QUANTITIES:

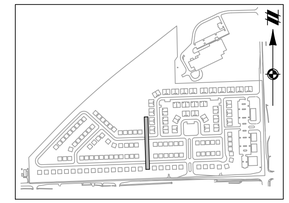
WATERMAIN:
487 L.F. 12" D.I.P. CL350 (TAP TO TAP)
(1) 12" VALVE

UTILITY PHASING NOTES: (THIS SHEET)

WATER MAIN = ALL PHASE 1

LEGEND

- 801 — EXISTING 1' CONTOUR
- 800 — EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- OHE — EXISTING OVERHEAD ELECTRICAL LINE
- OHT — EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- C — EXISTING STORM
- W — EXISTING WATER MAIN
- EXISTING SANITARY
- G — EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- 801 — PROPOSED 1' CONTOUR
- 800 — PROPOSED 5' CONTOUR
- C — PROPOSED STORM SEWER
- PROPOSED SANITARY
- W — PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- U.P. — EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- CATV — EXISTING CABLE MARKER
- T — EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT



KEYMAP
1" = 800'

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

WATERMAIN RECONSTRUCTION PROFILE

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

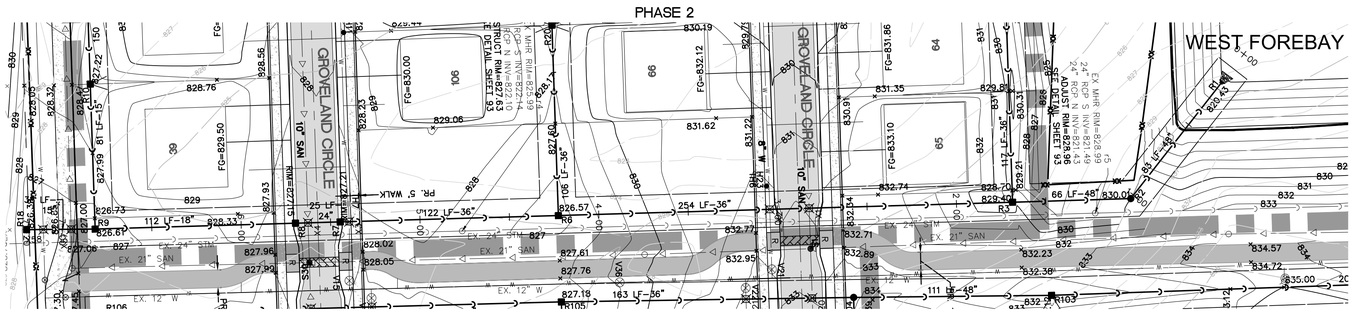
REVISIONS

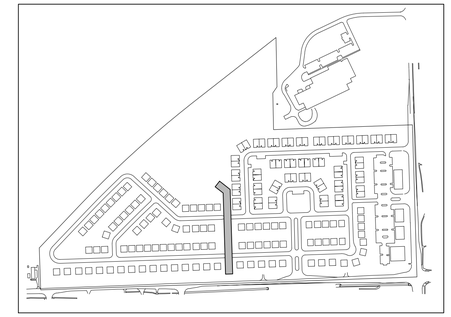
SCALE 0 20 40
1" = 40 FEET

DR. SK | CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 44

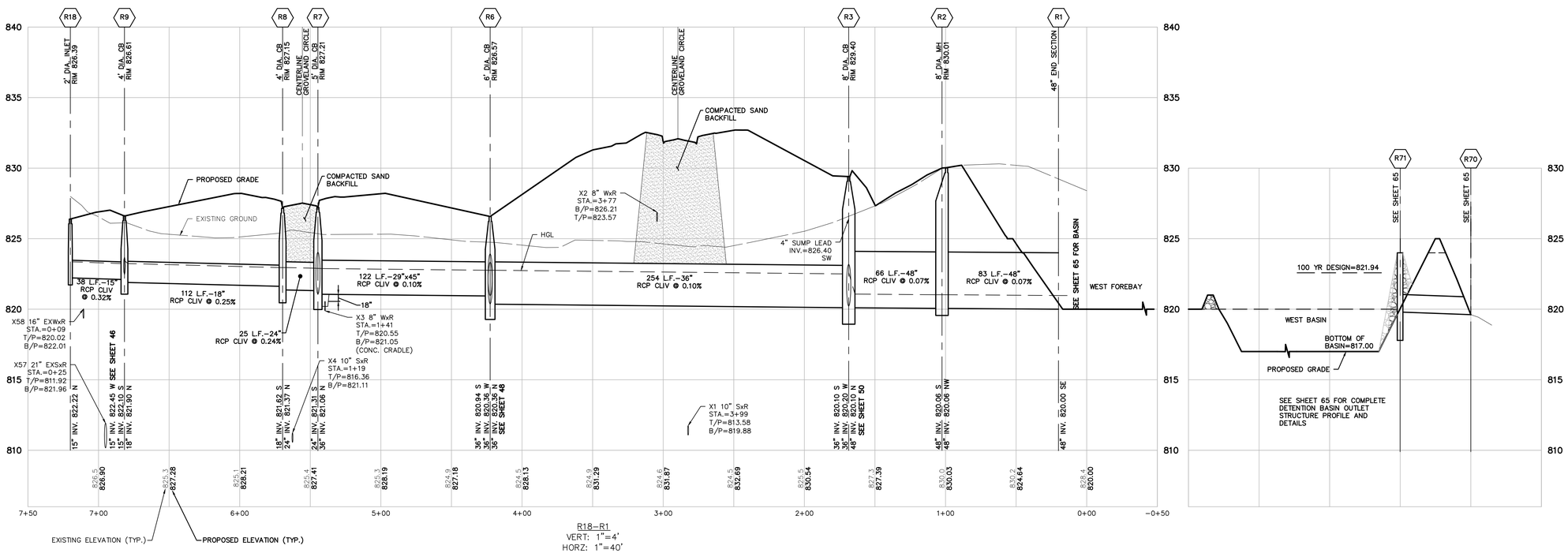
LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT





KEYMAP
1" = 500'



R18-R1
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 2

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE R18-R1

DATE
SEPTEMBER 13, 2016

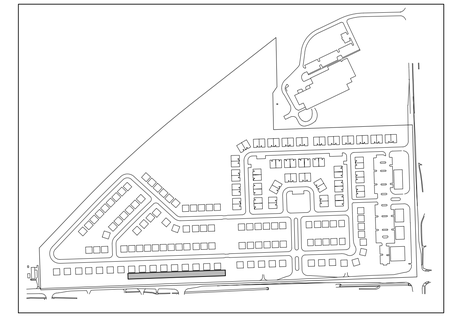
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

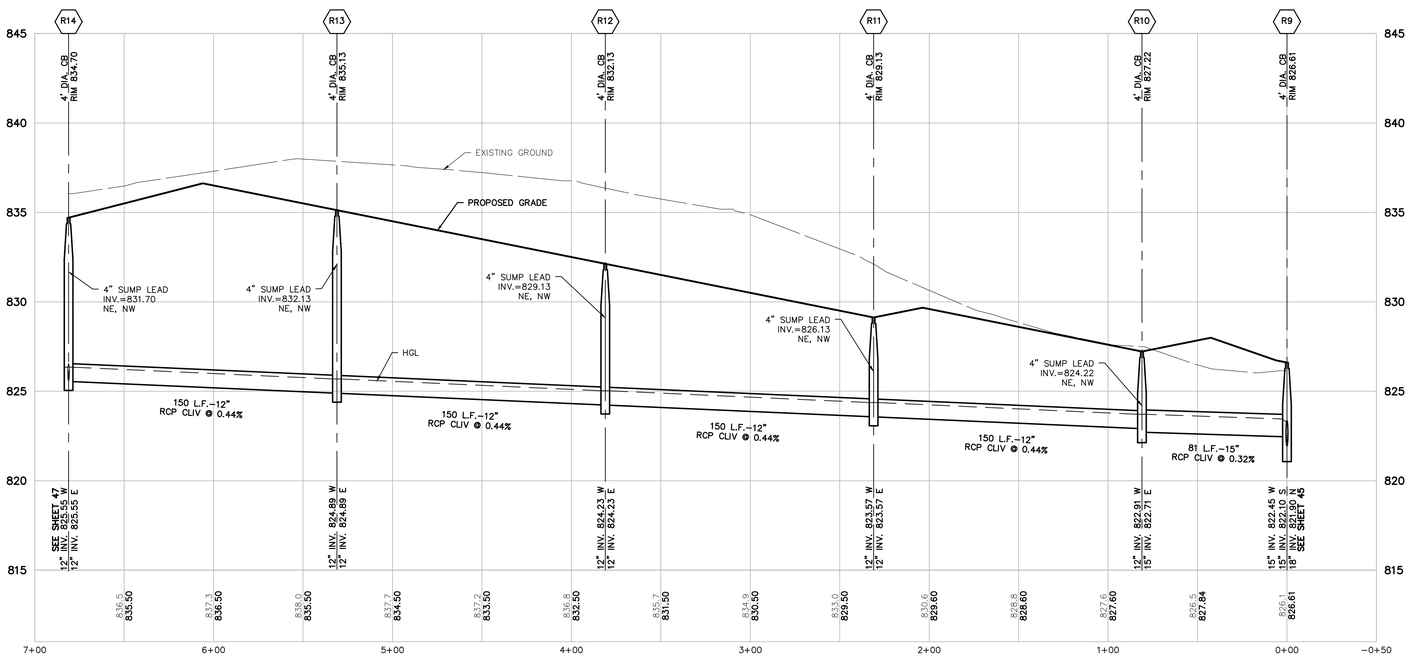
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 45

PHASE 2



KEYMAP
1" = 500'



R14–R9
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 2

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE R14–R9

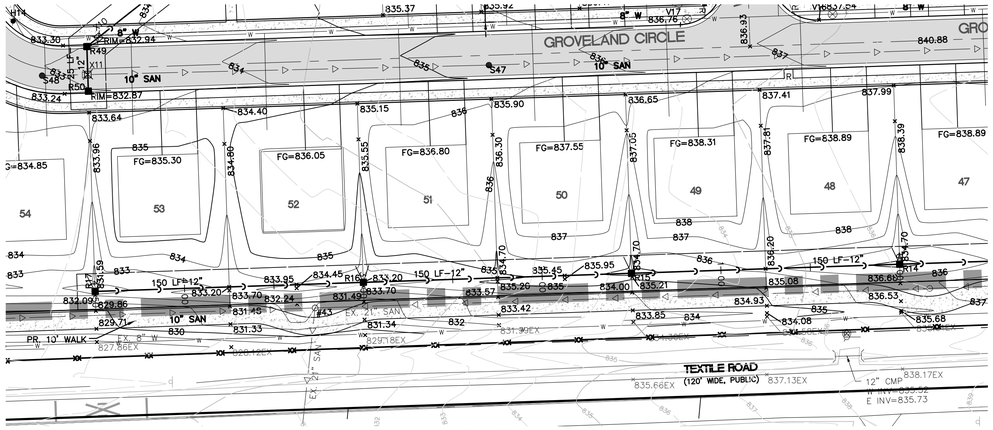
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

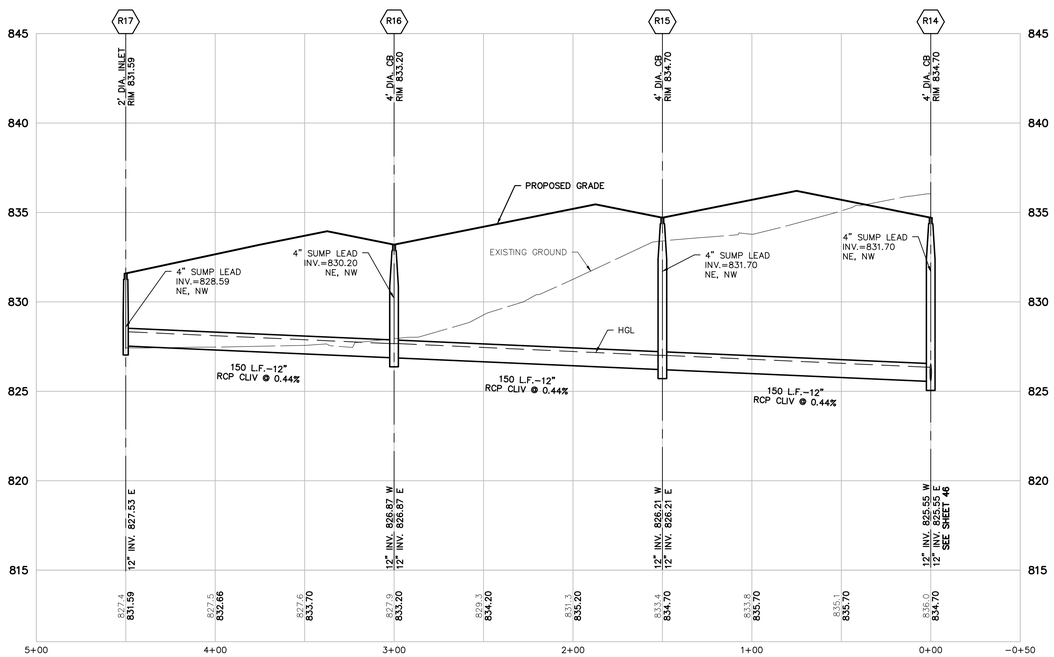
REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

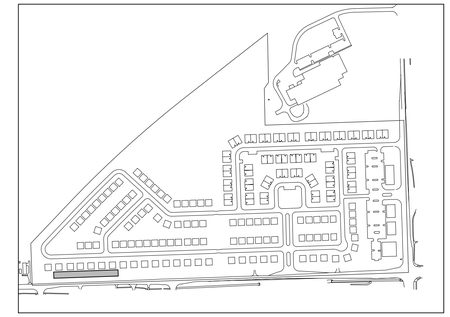
DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 46



PHASE 2



R17–R14
VERT: 1"=4'
HORZ: 1"=40'



KEYMAP
1" = 500'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PROPOSED RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 2

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND
PROFILE R17–R14

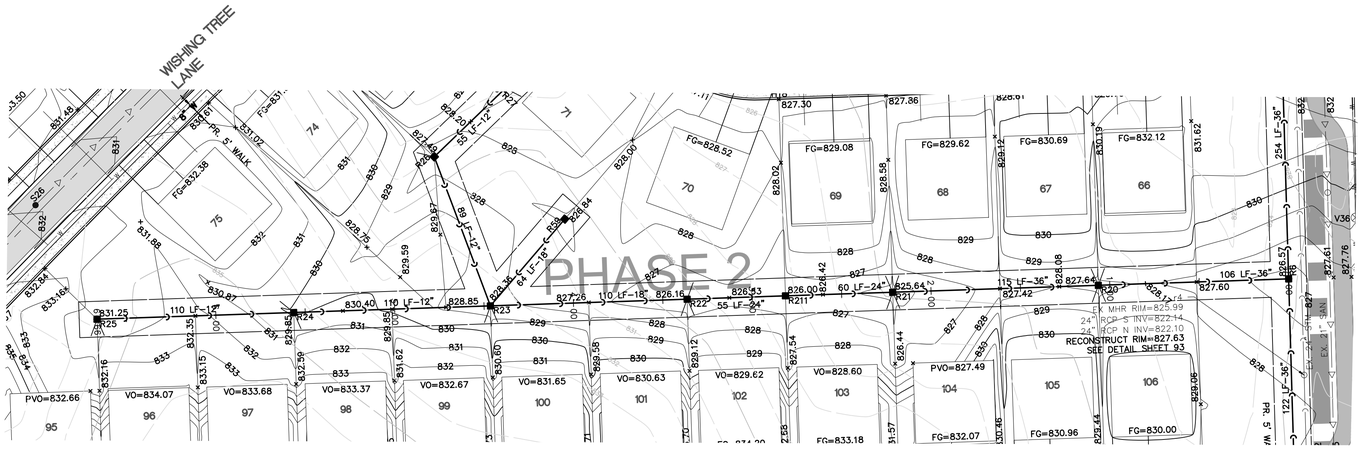
DATE
SEPTEMBER 13, 2016

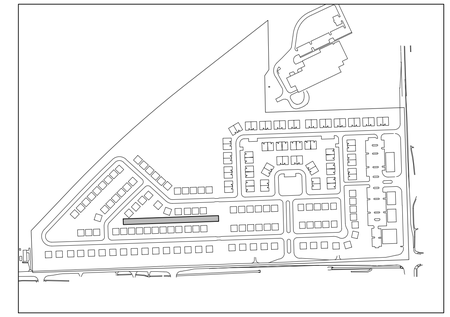
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

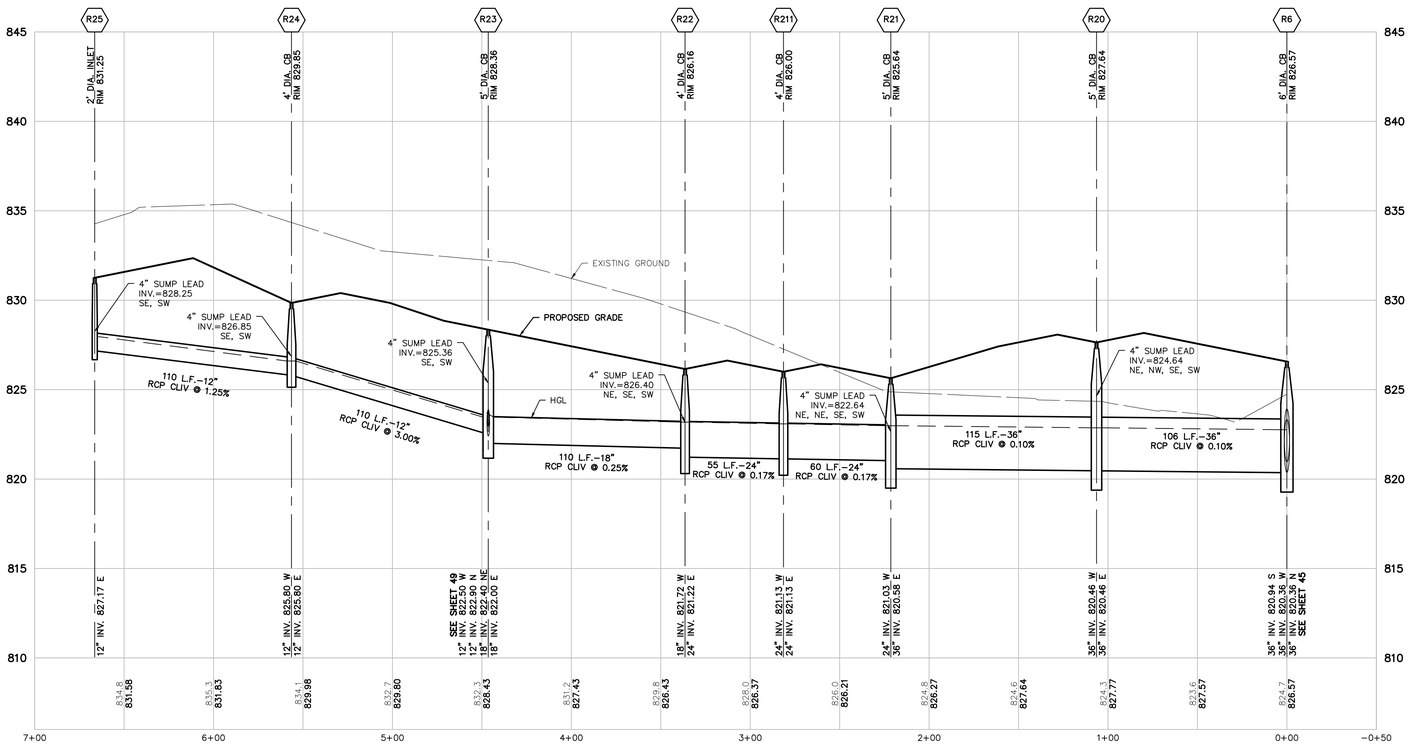
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 47	





KEYMAP
1" = 500'



R25-R6
VERT: 1"=4'
HORZ: 1"=40'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	BOUNDARY LINE
	EXISTING STORM
	EXISTING WATER MAIN
	EXISTING SANITARY
	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PROPOSED STORM SEWER
	PROPOSED SANITARY
	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PROPOSED RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 2

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE R25-R6

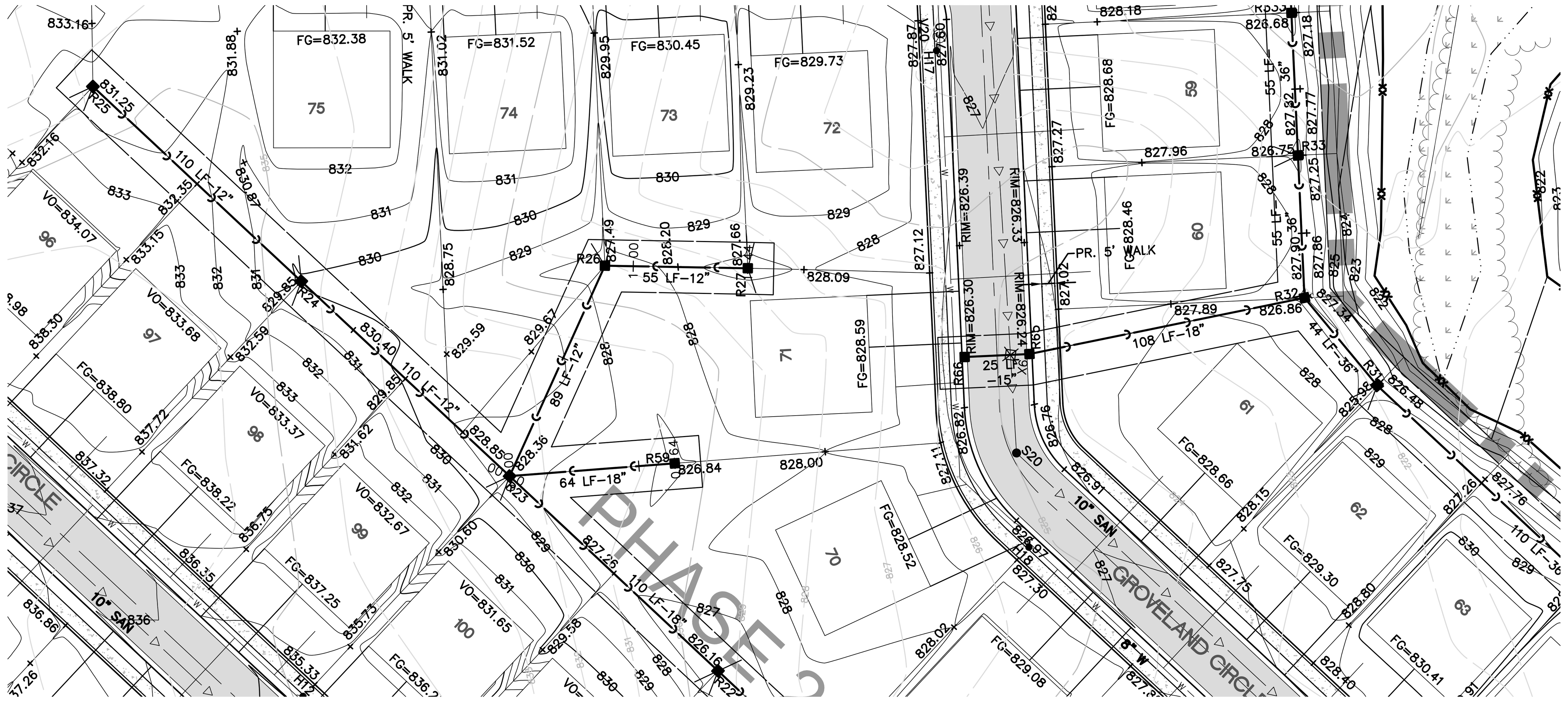
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

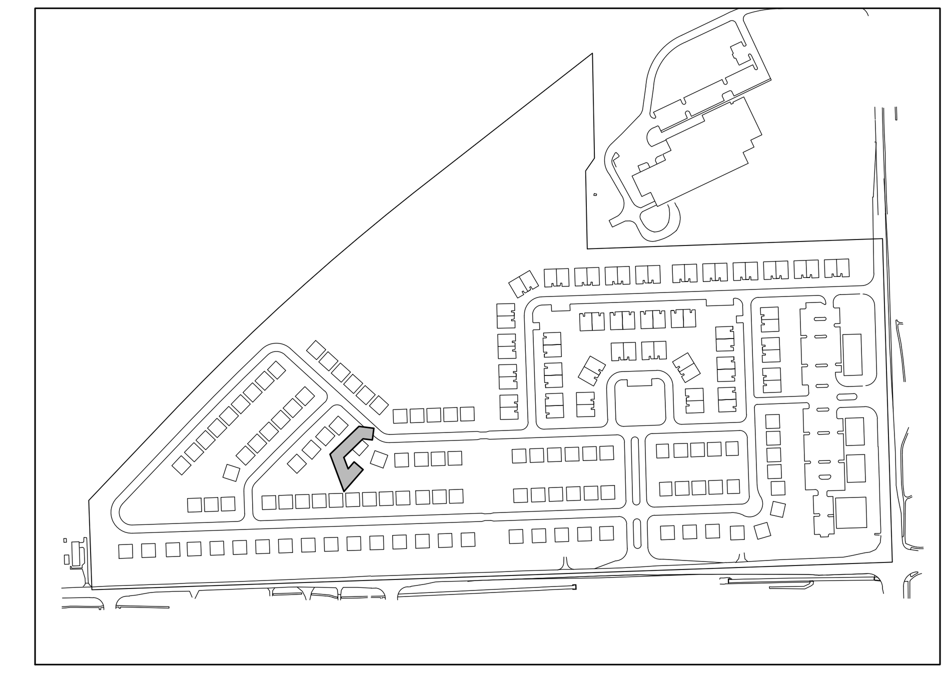
REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

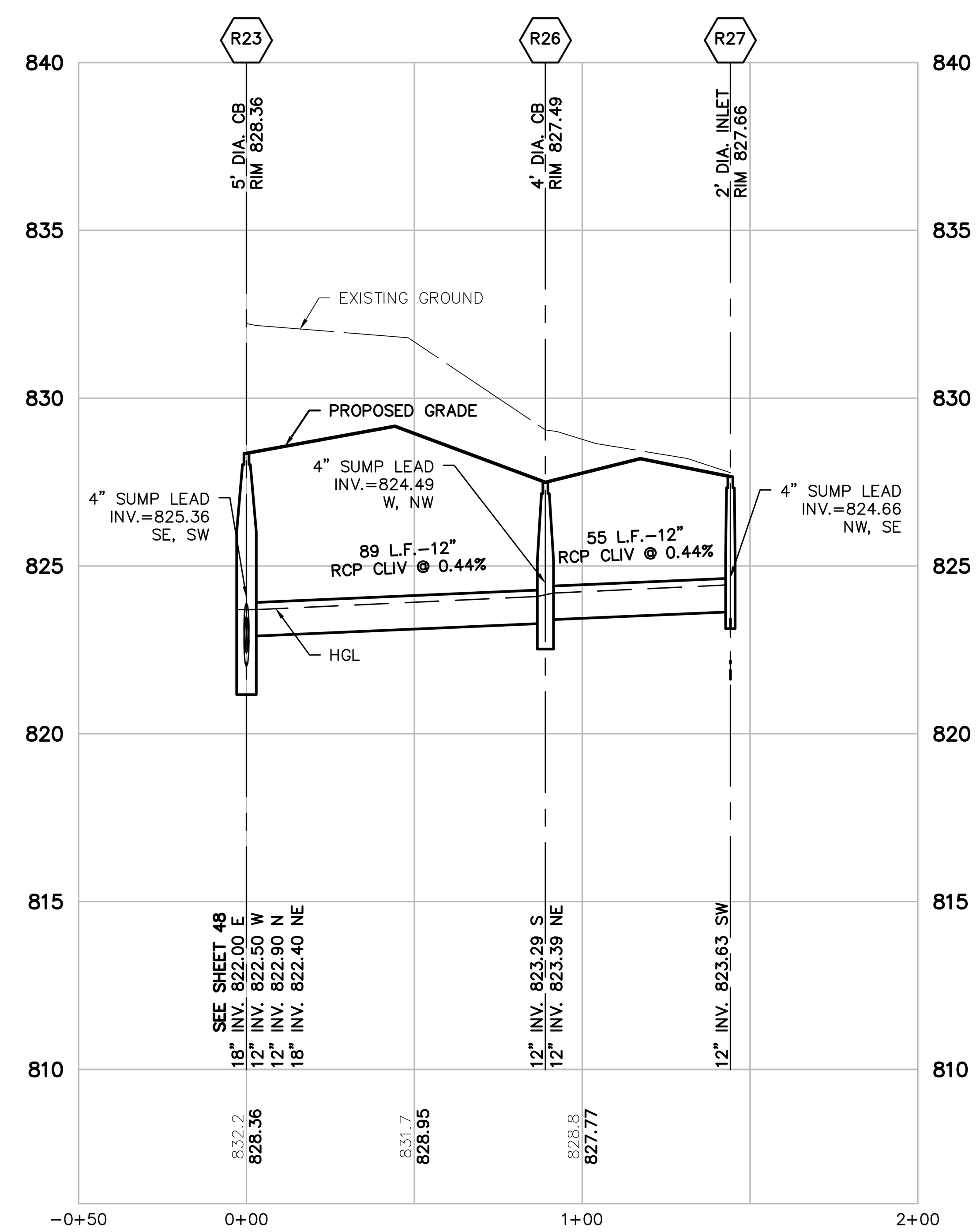
DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 48



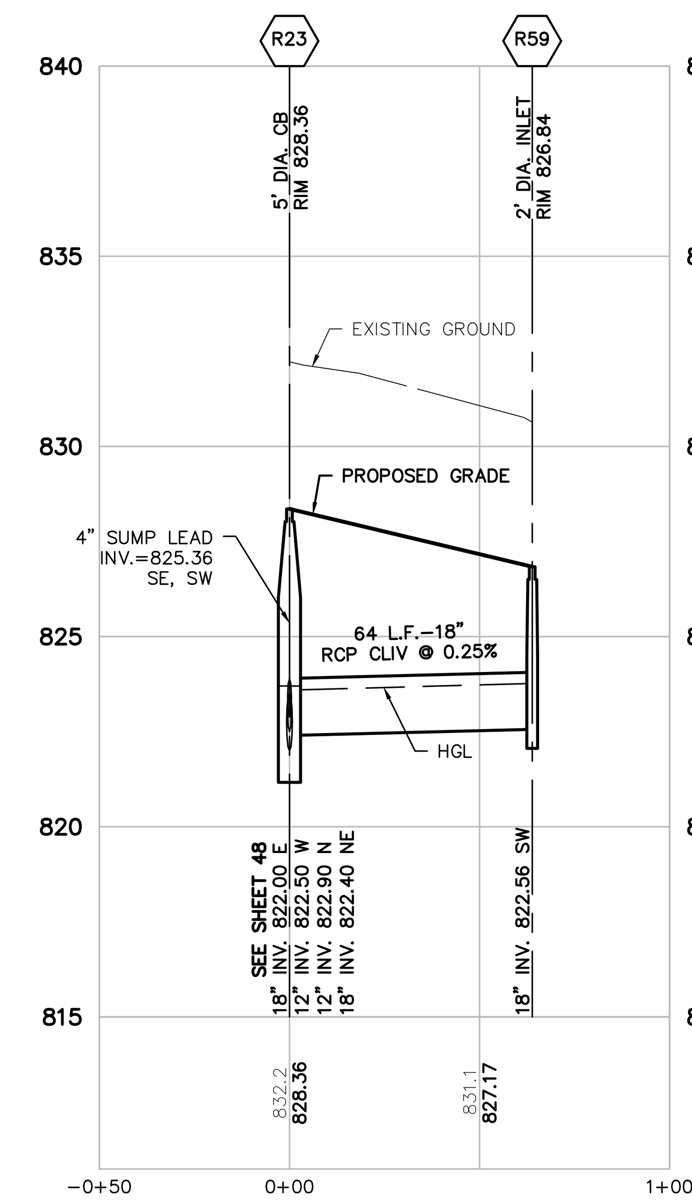
PHASE 2



KEYMAP
1" = 500'



R23–R27
VERT: 1"=4'
HORZ: 1"=40'



R23–R59
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 2

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND
PROFILE R23–R27 R23–R59

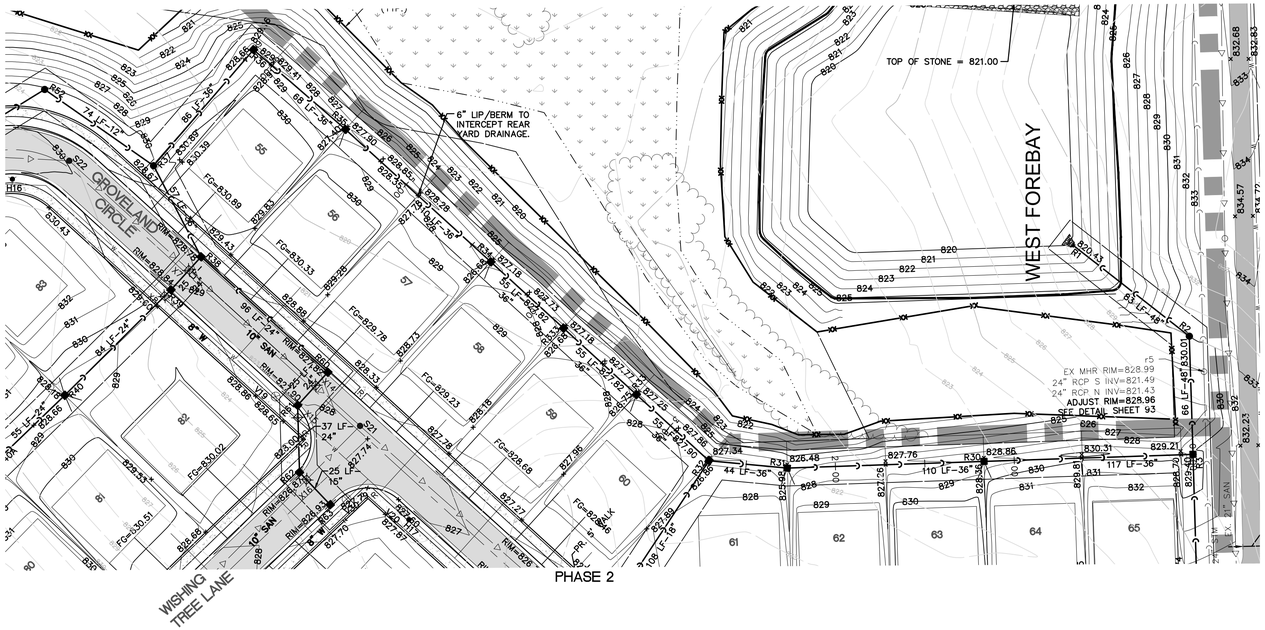
DATE
SEPTEMBER 13, 2016

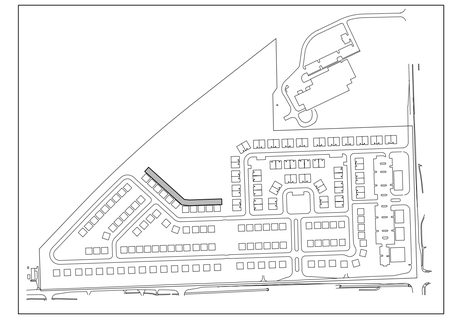
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

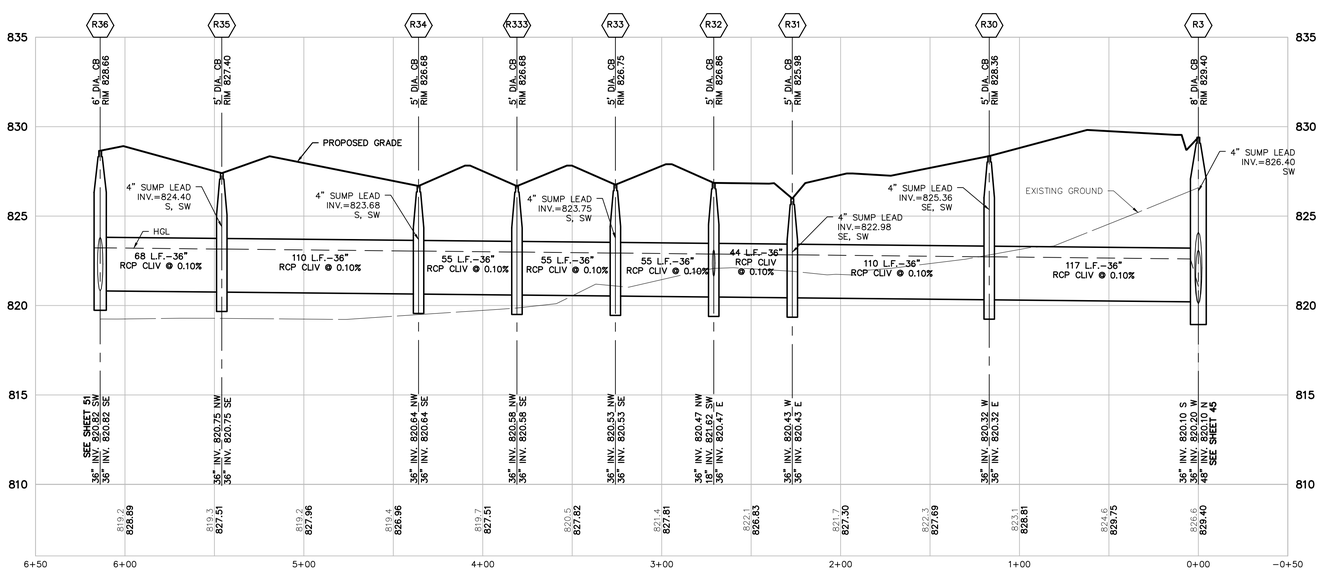
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO.
49





KEYMAP
1" = 500'



R36-R3
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 2

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE R36-R3

DATE
SEPTEMBER 13, 2016

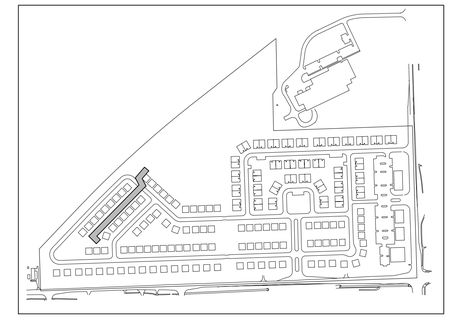
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP./WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBC

REVISIONS

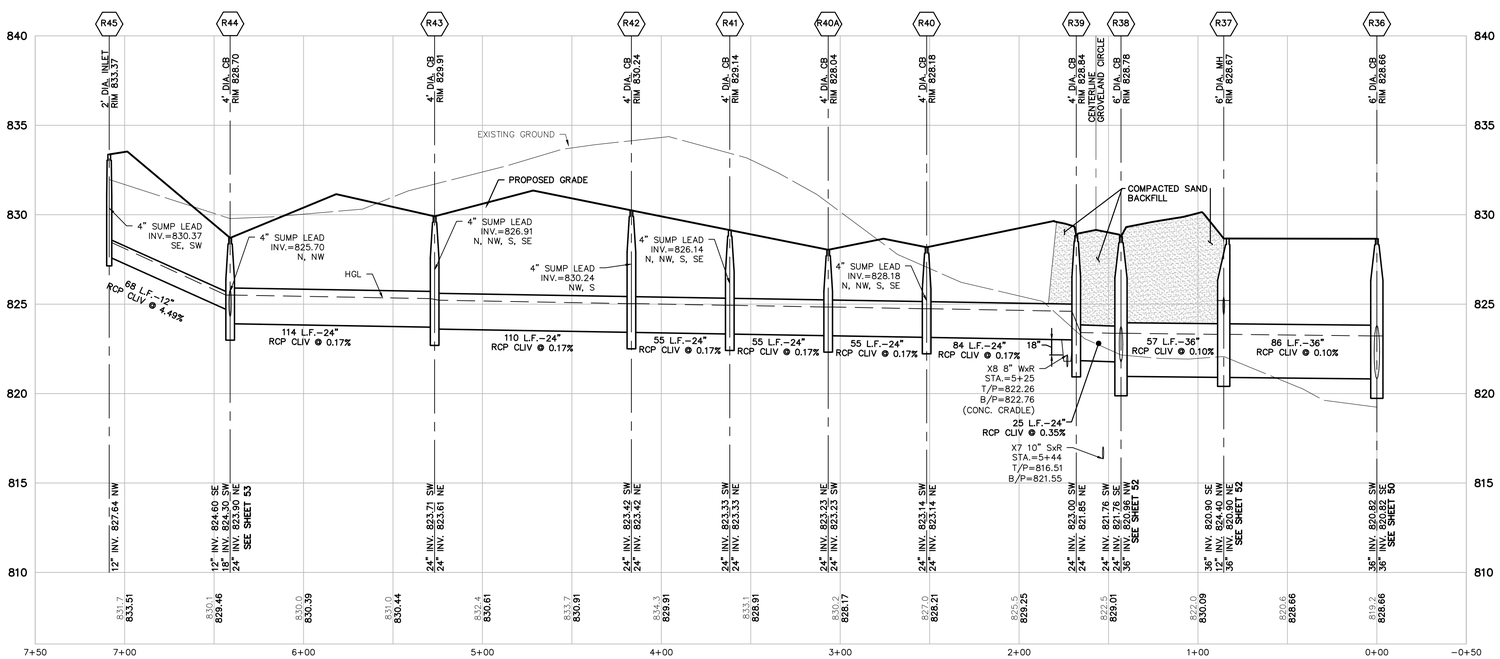
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 50

PHASE 2



KEYMAP
1" = 500'



R45–R36
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 2

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE R45–R36

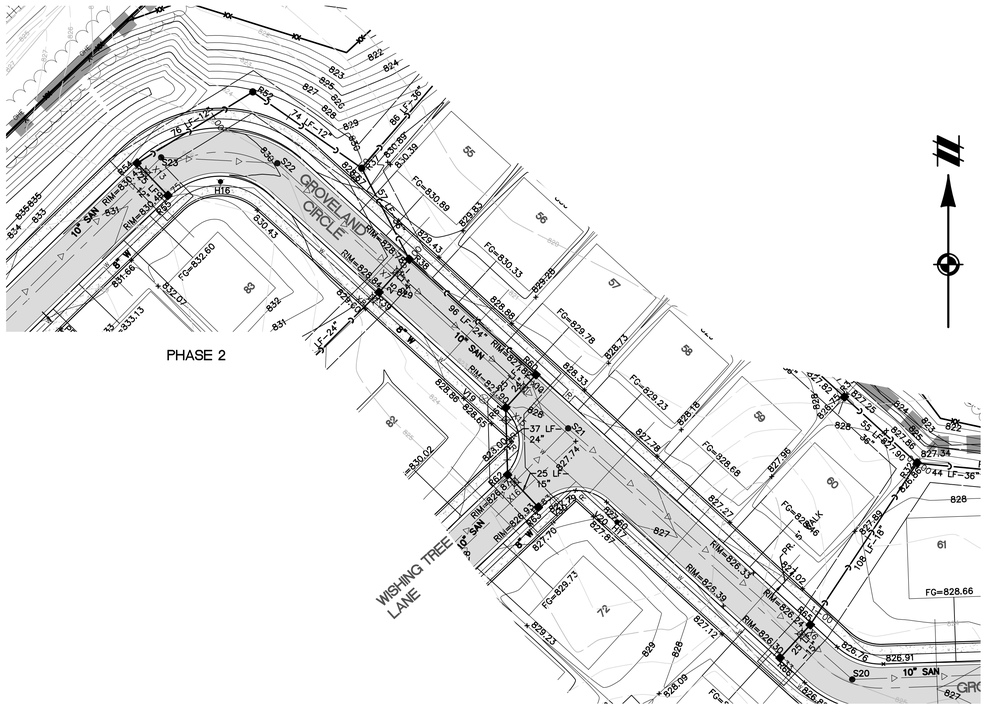
DATE
SEPTEMBER 13, 2016

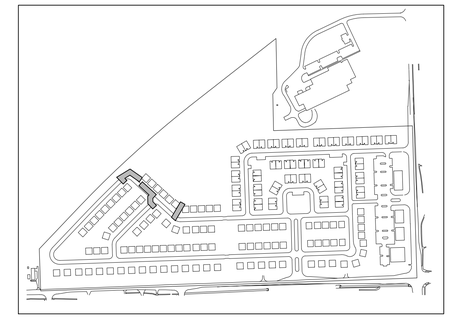
11/19/2015: PER WCRC
01/18/2016: TWP, WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBD

REVISIONS

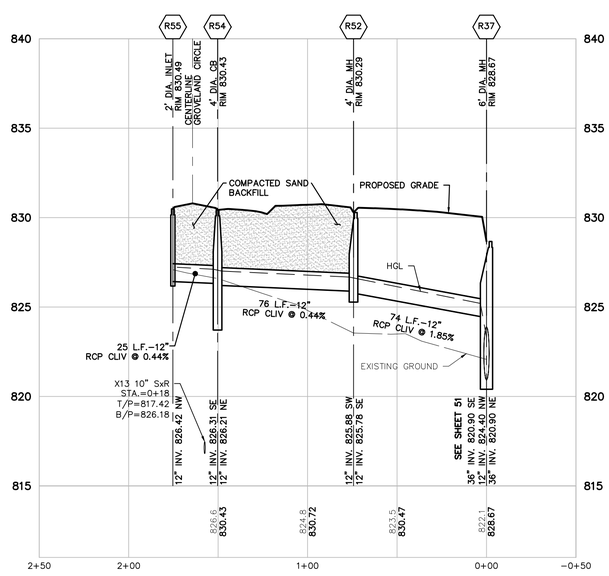
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO.
51

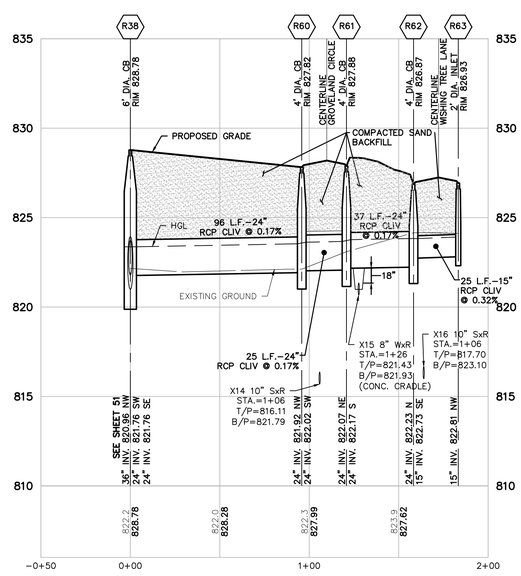




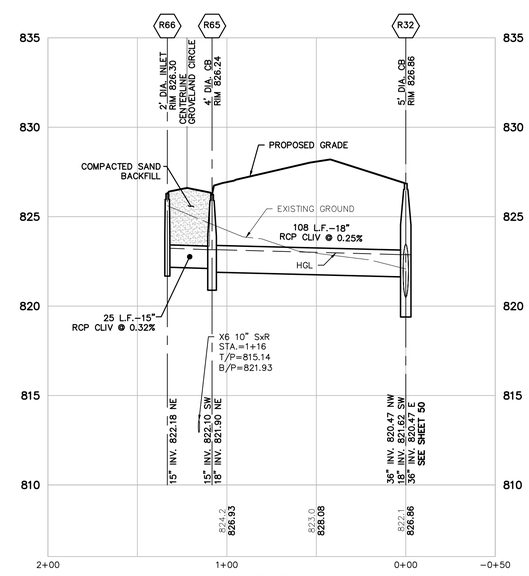
KEYMAP
1" = 500'



R55–R37
VERT: 1"=4'
HORZ: 1"=40'



R38–R63
VERT: 1"=4'
HORZ: 1"=40'



R66–R32
VERT: 1"=4'
HORZ: 1"=40'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PROPOSED RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 2

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R55–R37 R38–R63 R66–R32

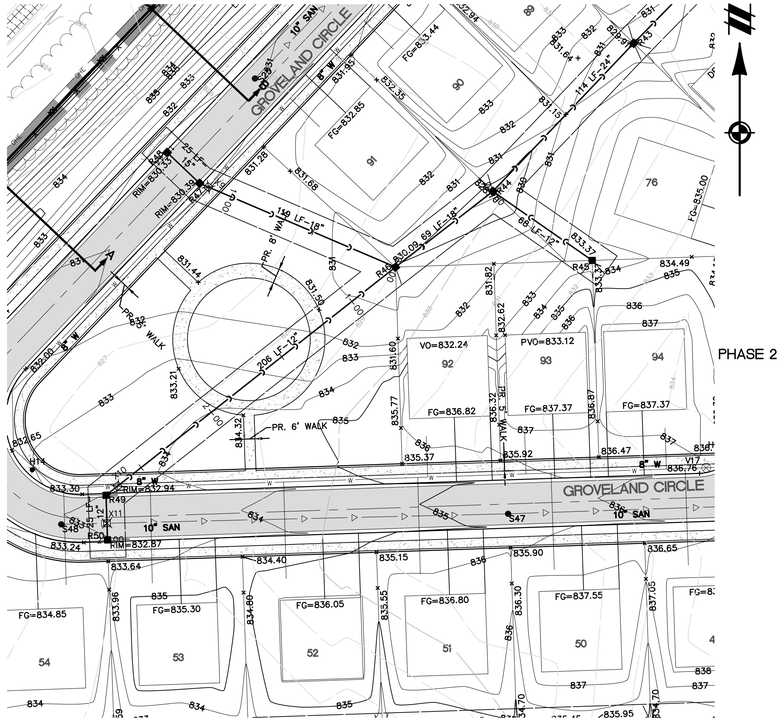
DATE
SEPTEMBER 13, 2016

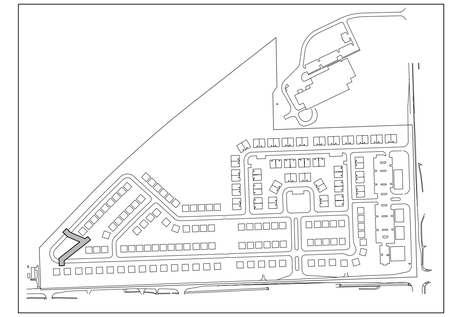
11/19/2015: PER WCRC
01/18/2016: TWP, WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBC

REVISIONS

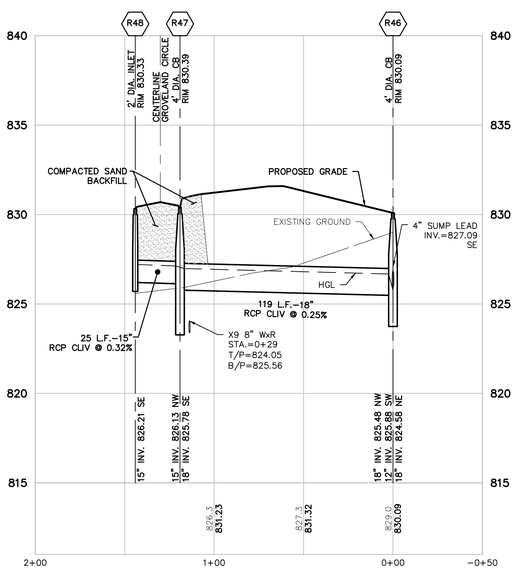
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 52	

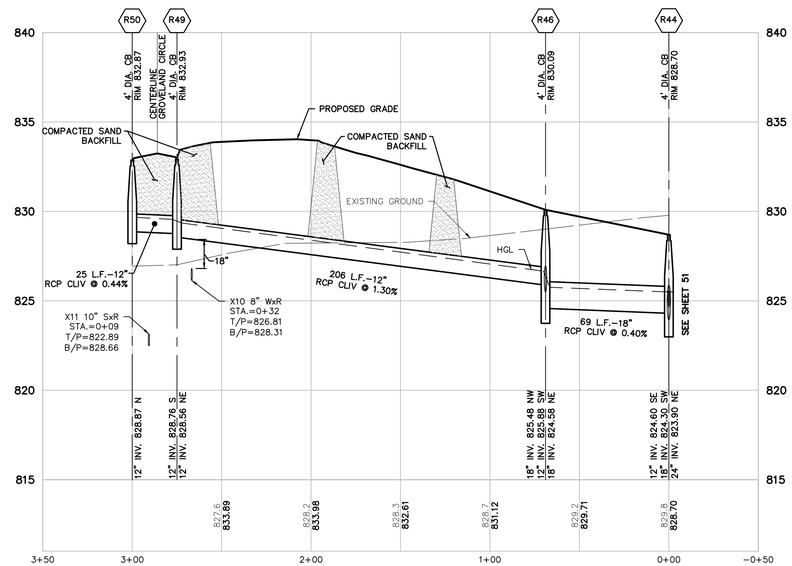




KEYMAP
1" = 500'



R48–R46
VERT: 1"=4'
HORZ: 1"=40'



R50–R44
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 2

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND
PROFILE R48–R46 R50–R44

DATE
SEPTEMBER 13, 2016

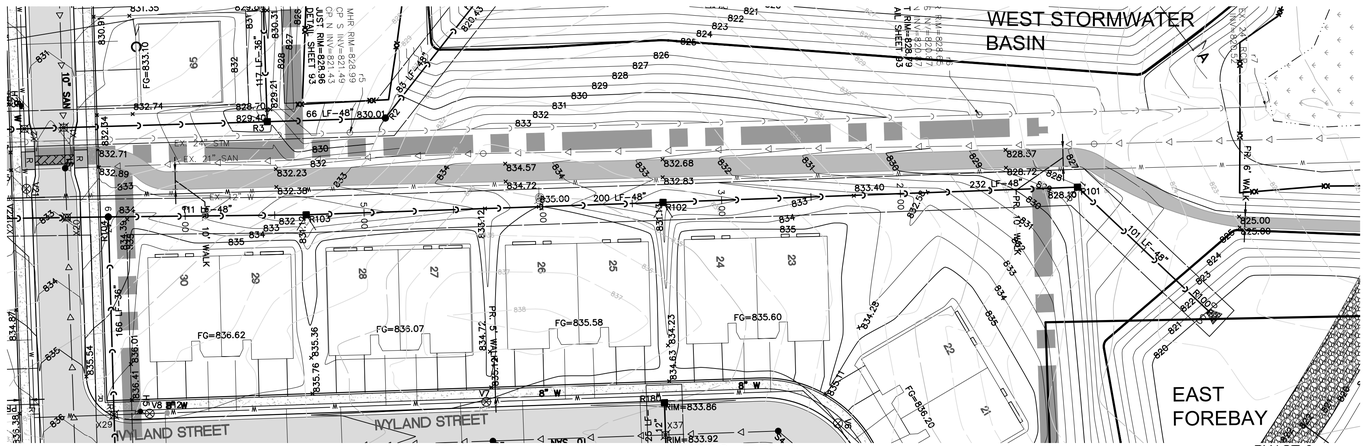
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

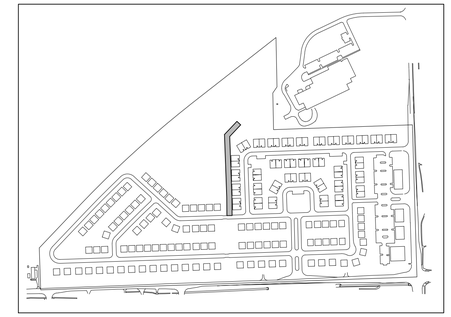
DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 53

PHASE 2

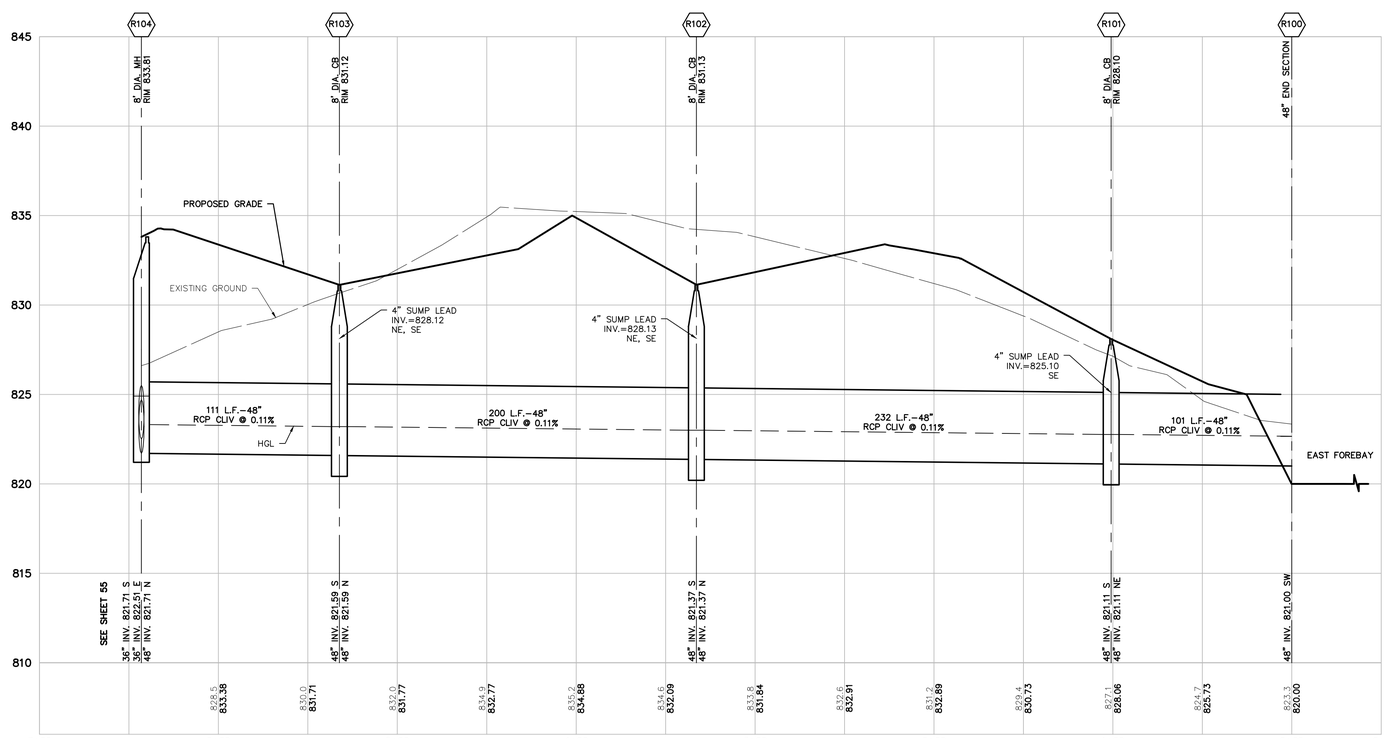


LEGEND

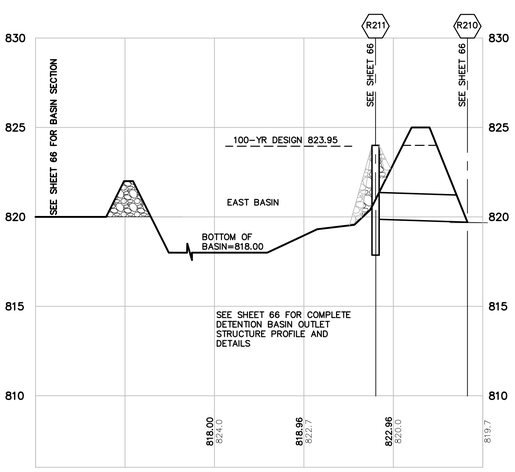
801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	BOUNDARY LINE
	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PROPOSED RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT



KEYMAP
1" = 500'



R104–R100
VERT: 1"=4'
HORZ: 1"=40'



UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R104–R100

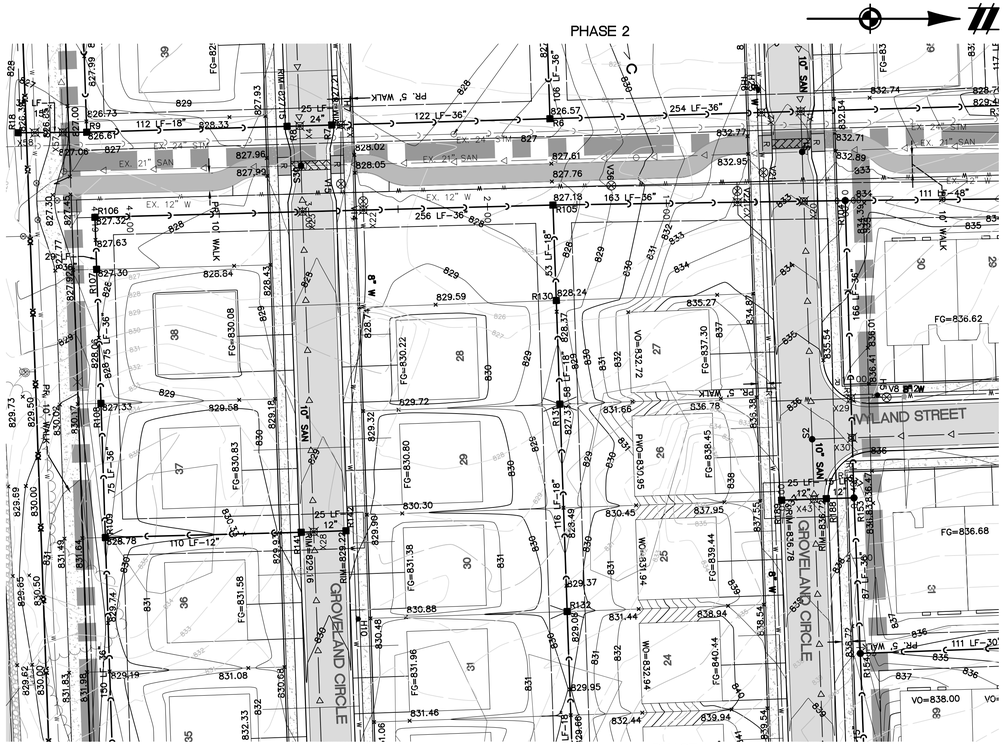
DATE
SEPTEMBER 13, 2016

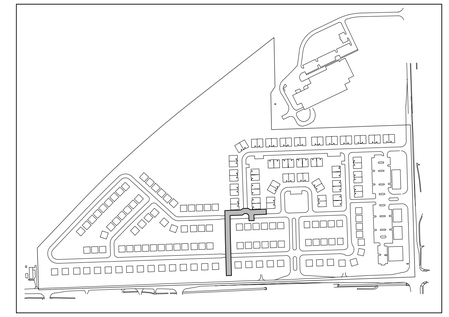
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

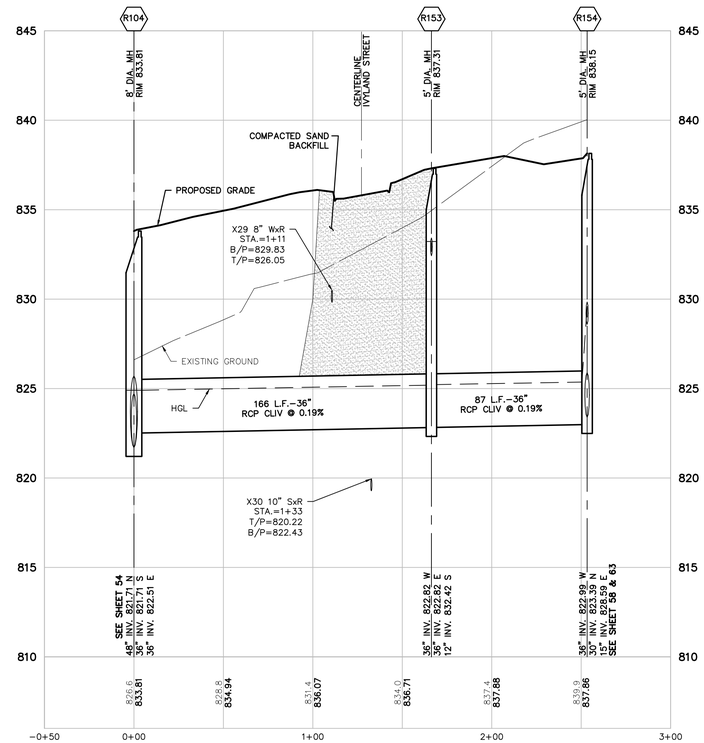
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 54

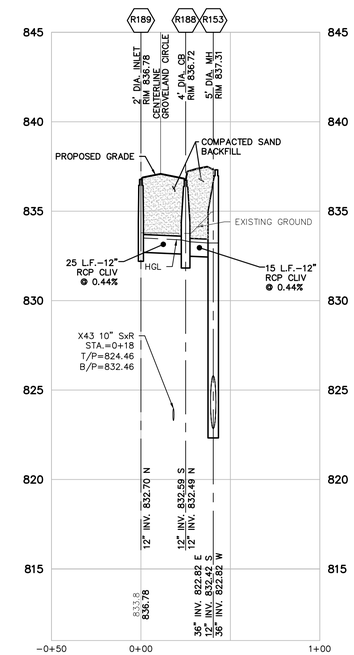




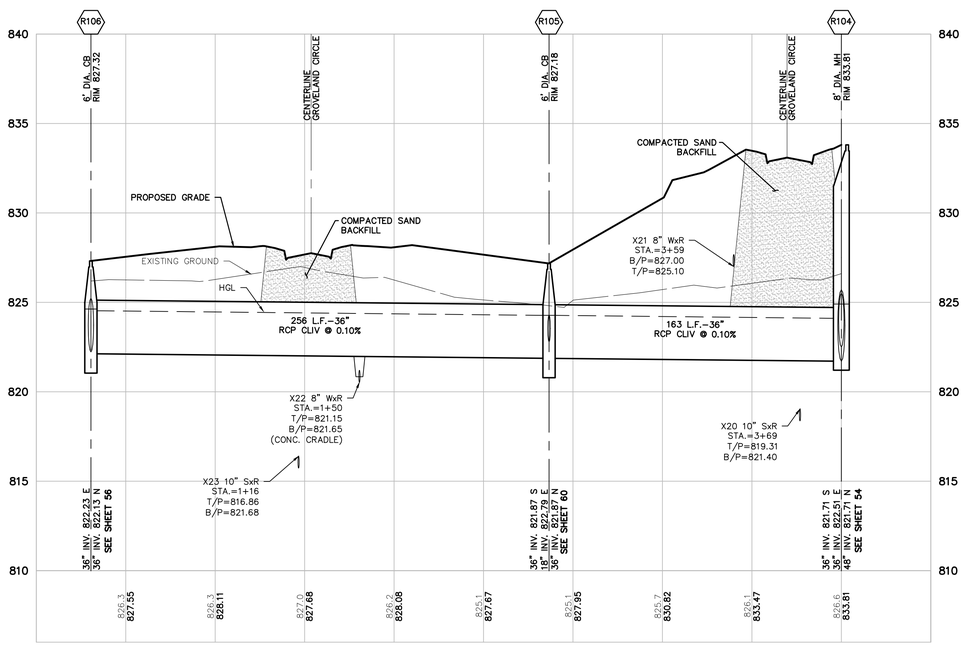
KEYMAP
1" = 500'



R104–R154
VERT: 1"=4'
HORZ: 1"=40'



R189–R153
VERT: 1"=4'
HORZ: 1"=40'



R106–R104
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PROPOSED RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R106–R104 R104–R154 R189–R153

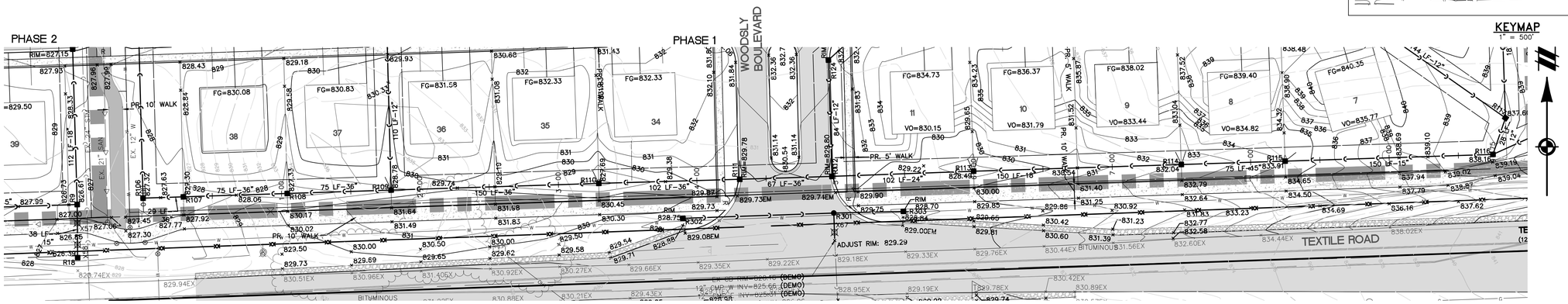
DATE
SEPTEMBER 13, 2016

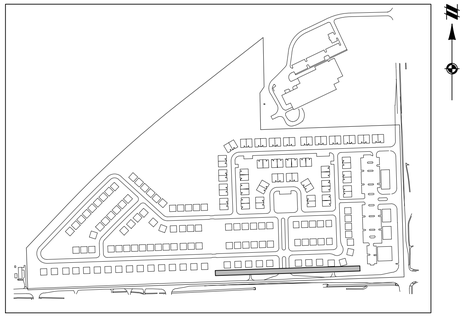
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

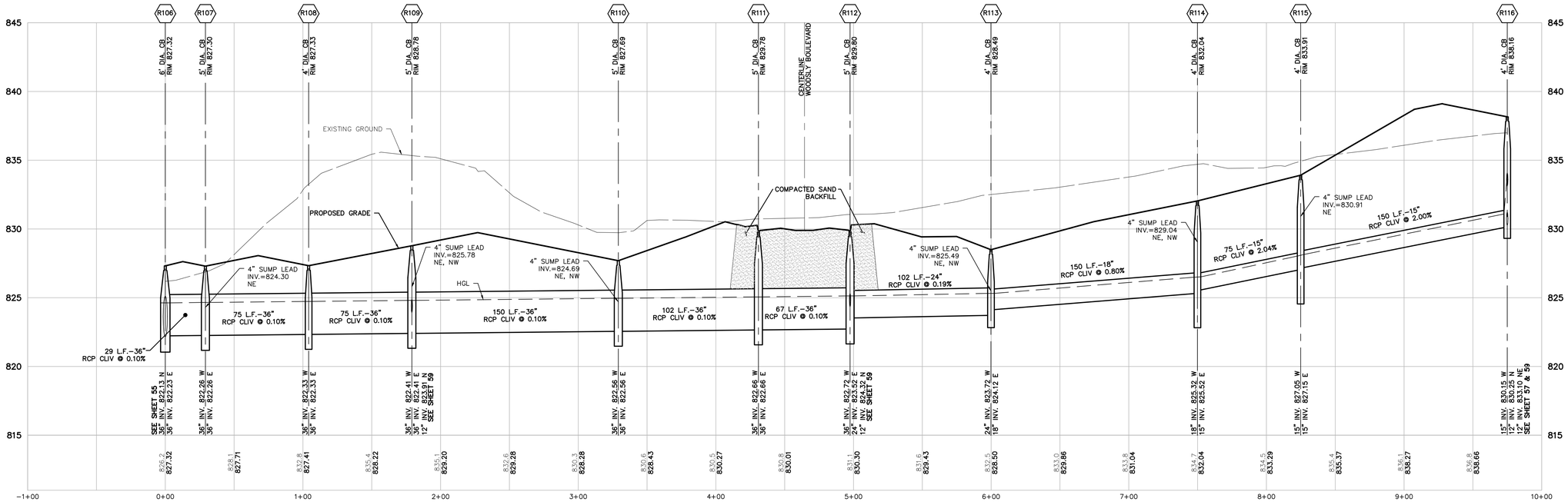
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 55	





KEYMAP
1" = 500'



R106–R116
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1

LEGEND

- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT
- EXISTING WETLAND
- PROPOSED RIP-RAP

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R106–R116

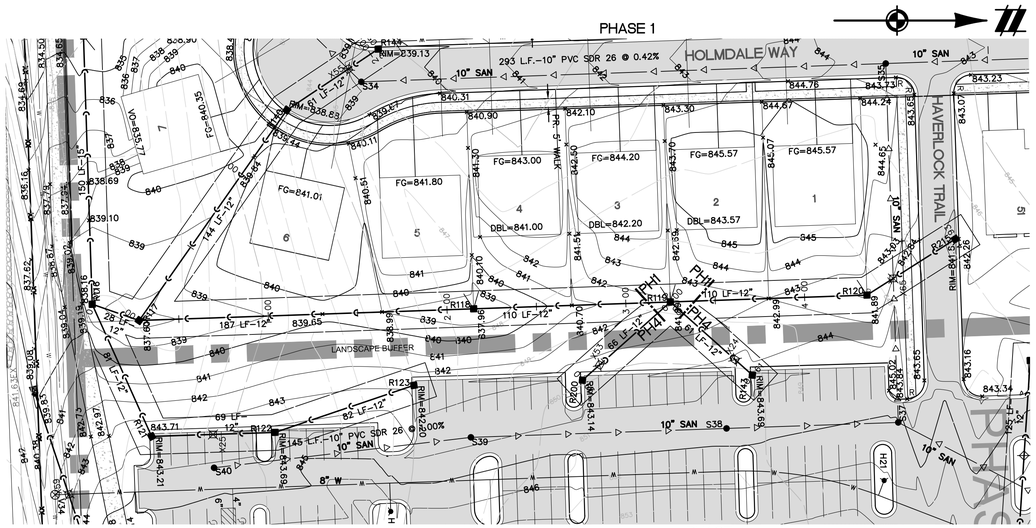
DATE
SEPTEMBER 13, 2016

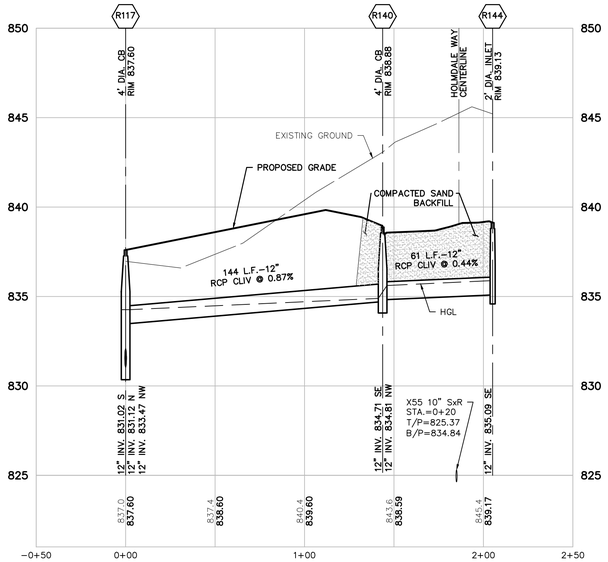
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

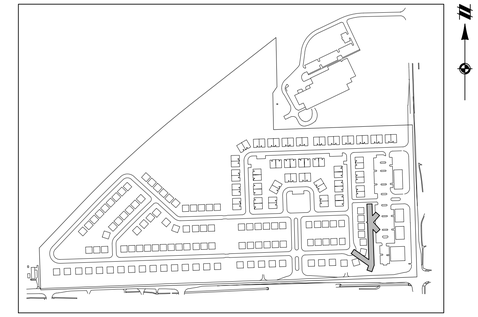
REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

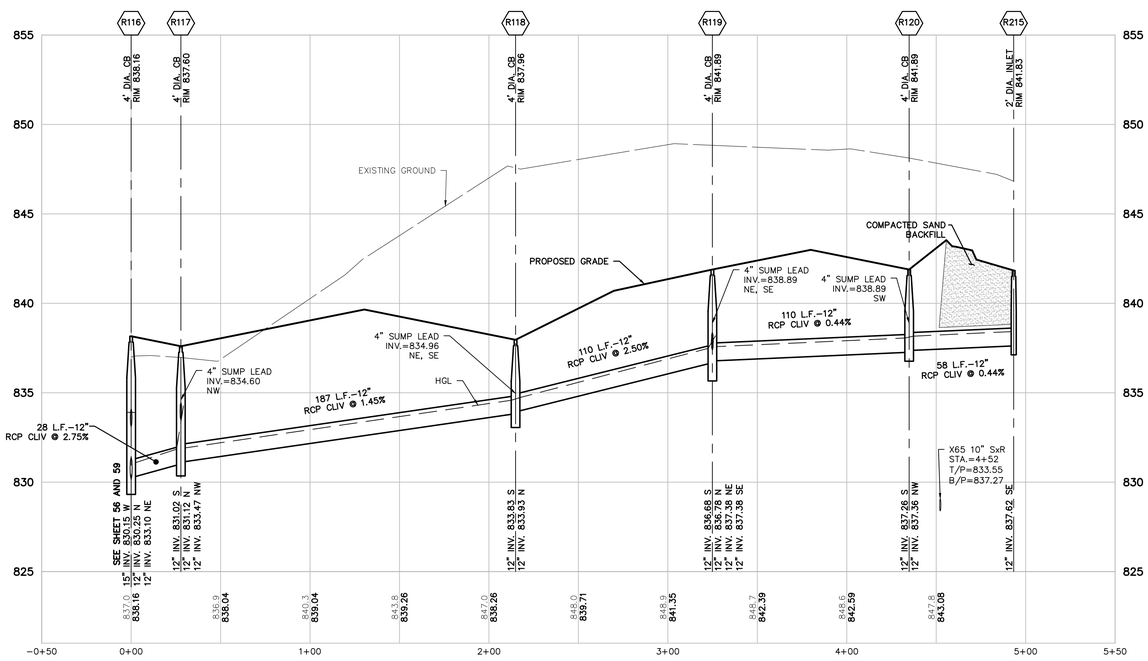
DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 56







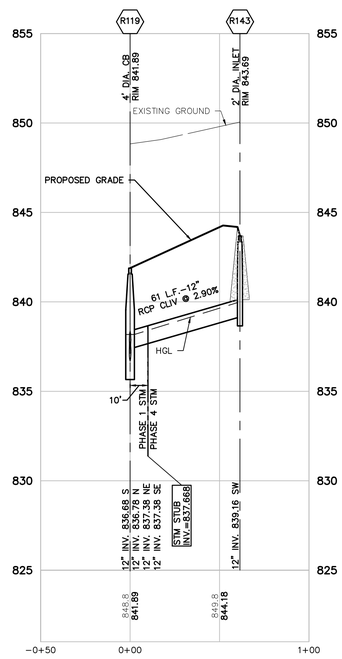
KEYMAP
1" = 500'

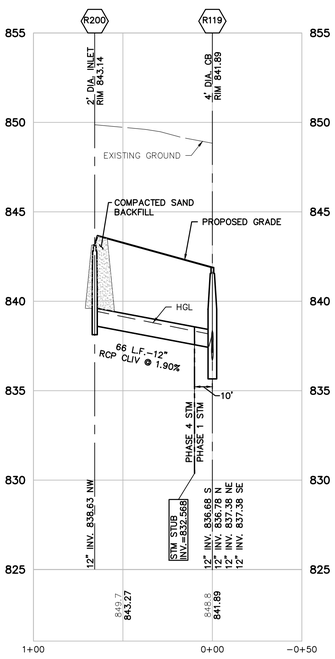


UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1 (ABOVE AND LEFT)

STORM SEWER = PHASE 1/ PHASE 4 (REFER TO PROFILES BELOW)





LEGEND

EXISTING WETLAND LINE	PROPOSED BACK/EDGE CURB		PROPOSED CATCH BASIN/INLET
BOUNDARY LINE	PROPOSED CENTERLINE		PROPOSED OUTLET
EXISTING STORM	PROPOSED ELEVATION		PROPOSED MANHOLE
EXISTING WATER MAIN		EXISTING SANITARY MANHOLE	PROPOSED WATER VALVE IN WELL
EXISTING SANITARY		EXISTING CATCH BASIN/INLET	PROPOSED FIRE HYDRANT
EXISTING GAS		EXISTING WATER MANHOLE	EXISTING WETLAND
EXISTING RAILROAD		EXISTING 1' CONTOUR	PROPOSED RIP-RAP
PROPOSED STORM SEWER		EXISTING 5' CONTOUR	
PROPOSED SANITARY		PROPOSED 1' CONTOUR	
PROPOSED WATER MAIN		PROPOSED 5' CONTOUR	
PROPOSED LOT			
PROPOSED EASEMENT			
PROPOSED R.O.W.			

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

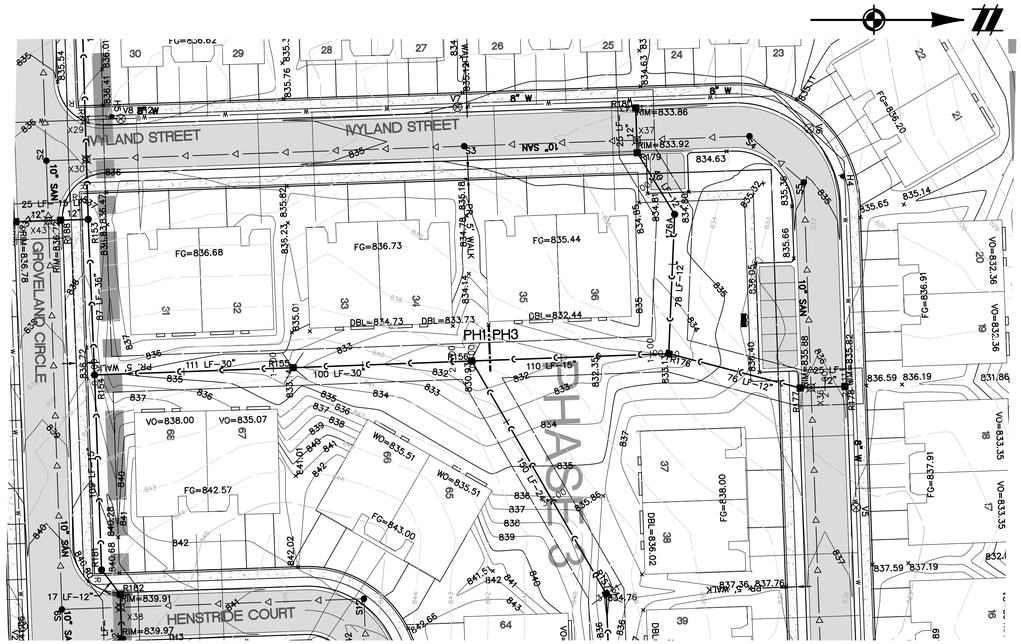
STORMWATER PLAN AND PROFILE
R116–215 R117–144 R119–143
R200–119

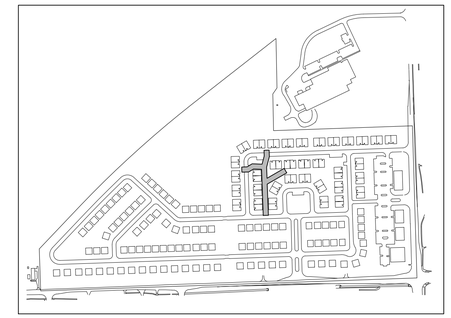
DATE
SEPTEMBER 13, 2016

REVISIONS
11/19/2015: PER WCRC
01/18/2016: TWP, WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

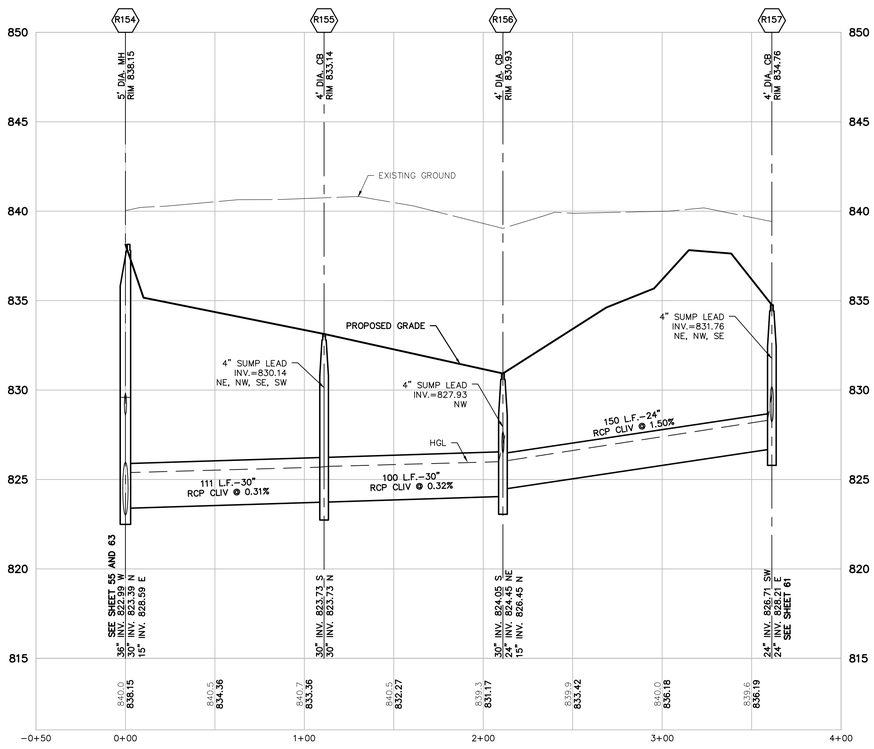
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 57

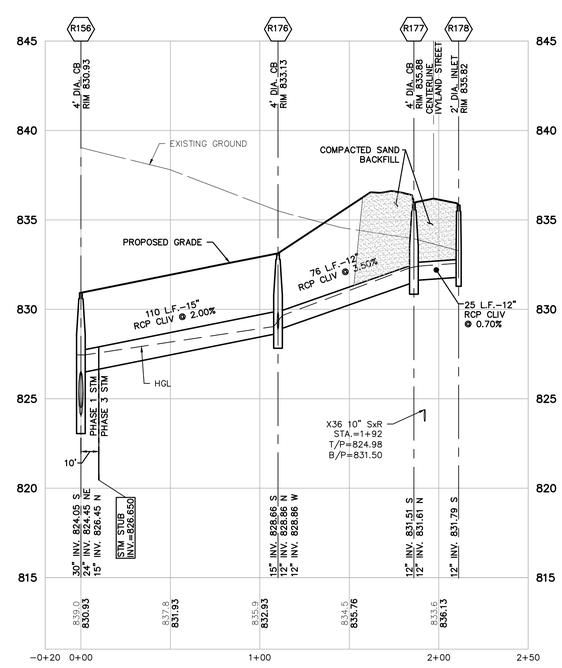




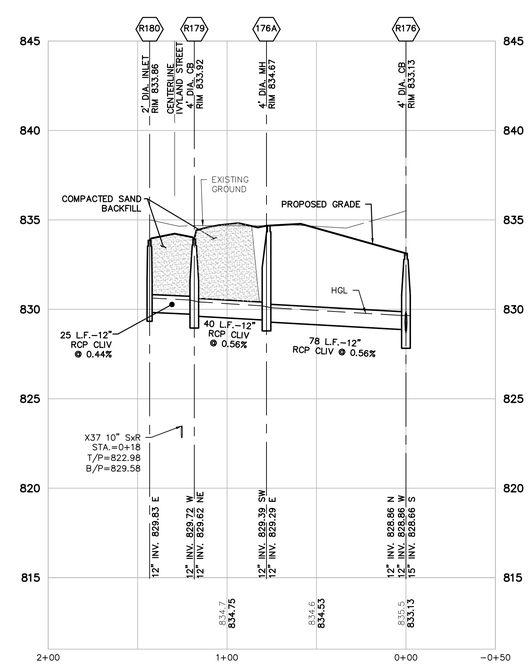
KEYMAP
1" = 500'



R154–R157
VERT: 1"=4'
HORZ: 1"=40'



R156–R178
VERT: 1"=4'
HORZ: 1"=40'



R180–R176
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1 (LEFT)

STORM SEWER = ALL PHASE 3 (RIGHT)

STORM SEWER = PHASE 1/ PHASE 3 (REFER TO PROFILE ABOVE)

LEGEND

	EXISTING WETLAND LINE		PROPOSED BACK/EDGE CURB	■	PROPOSED CATCH BASIN/INLET
	BOUNDARY LINE		PROPOSED CENTERLINE		PROPOSED OUTLET
C	EXISTING STORM		PROPOSED ELEVATION	●	PROPOSED MANHOLE
W	EXISTING WATER MAIN	○	EXISTING SANITARY MANHOLE	⊗	PROPOSED WATER VALVE IN WELL
▷	EXISTING SANITARY	□	EXISTING CATCH BASIN/INLET	●	PROPOSED FIRE HYDRANT
G	EXISTING GAS	⊗	EXISTING WATER MANHOLE		EXISTING WETLAND
	EXISTING RAILROAD	801	EXISTING 1' CONTOUR		PROPOSED RIP-RAP
	PROPOSED STORM SEWER	800	EXISTING 5' CONTOUR		
▷	PROPOSED SANITARY	801	PROPOSED 1' CONTOUR		
W	PROPOSED WATER MAIN	800	PROPOSED 5' CONTOUR		
	PROPOSED LOT				
	PROPOSED EASEMENT				
	PROPOSED R.O.W.				

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R154–R157 R156–R178 R180–R176

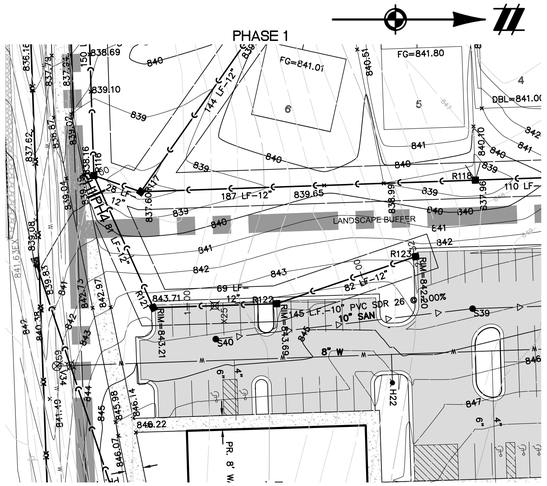
DATE
SEPTEMBER 13, 2016

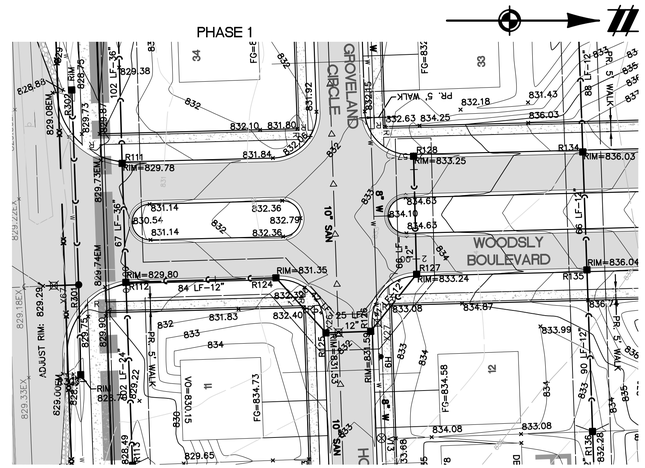
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

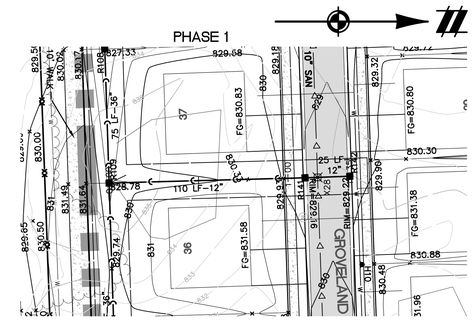
REVISIONS

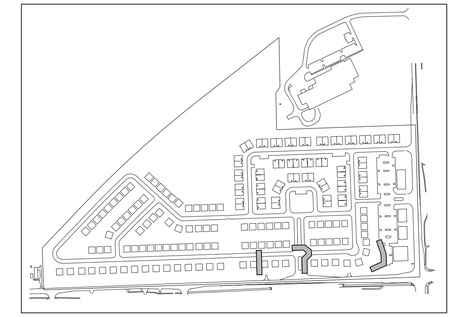
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 58	

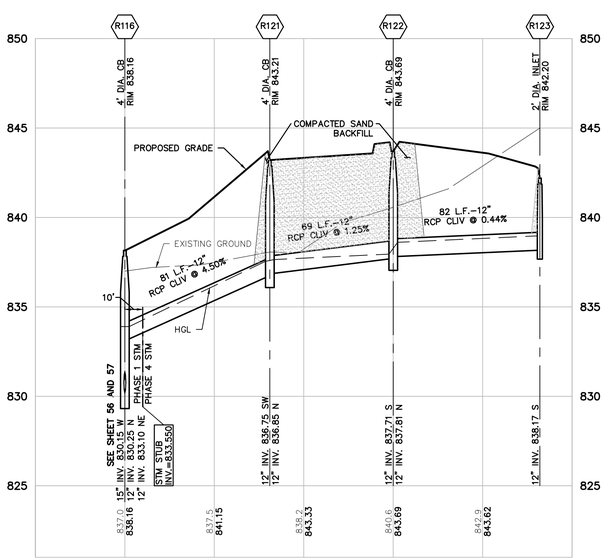




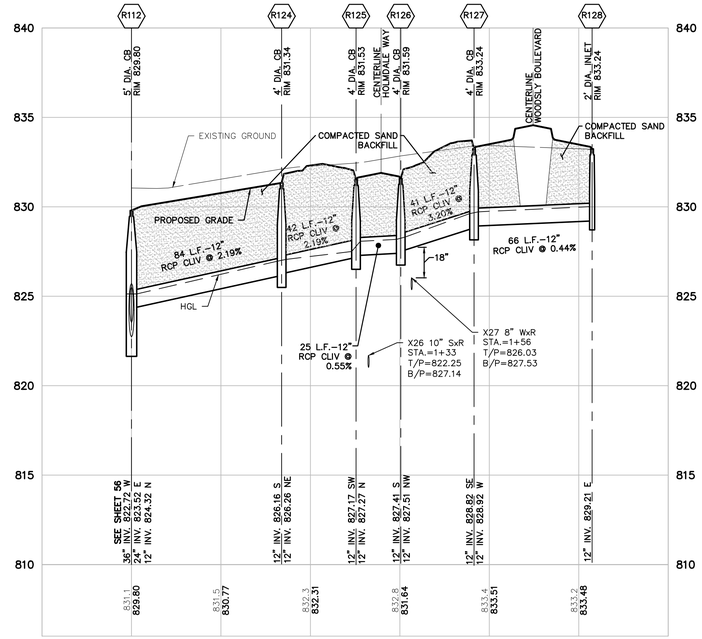




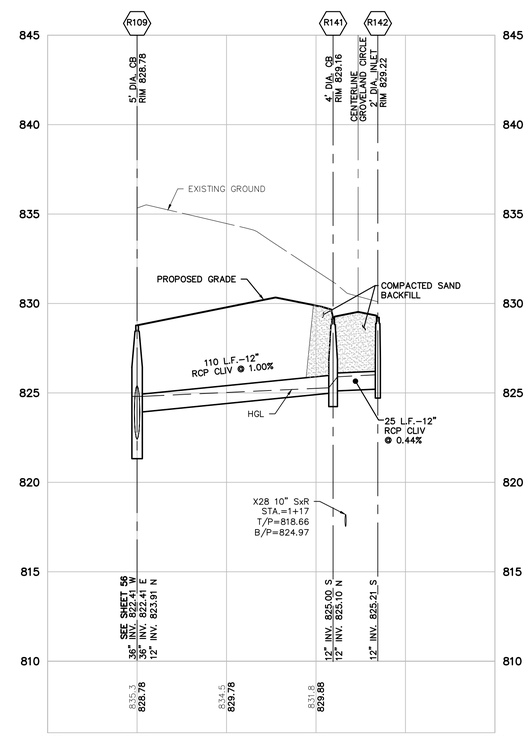
KEYMAP
1" = 500'



R116–R123
VERT: 1"=4'
HORZ: 1"=40'



R112–R128
VERT: 1"=4'
HORZ: 1"=40'



R109–R142
VERT: 1"=4'
HORZ: 1"=40'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PROPOSED RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1 (ABOVE AND RIGHT)

STORM SEWER = PHASE 1/ PHASE 4 (REFER TO LEFT PROFILE)

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R116–R123 R112–R128 R109–R142

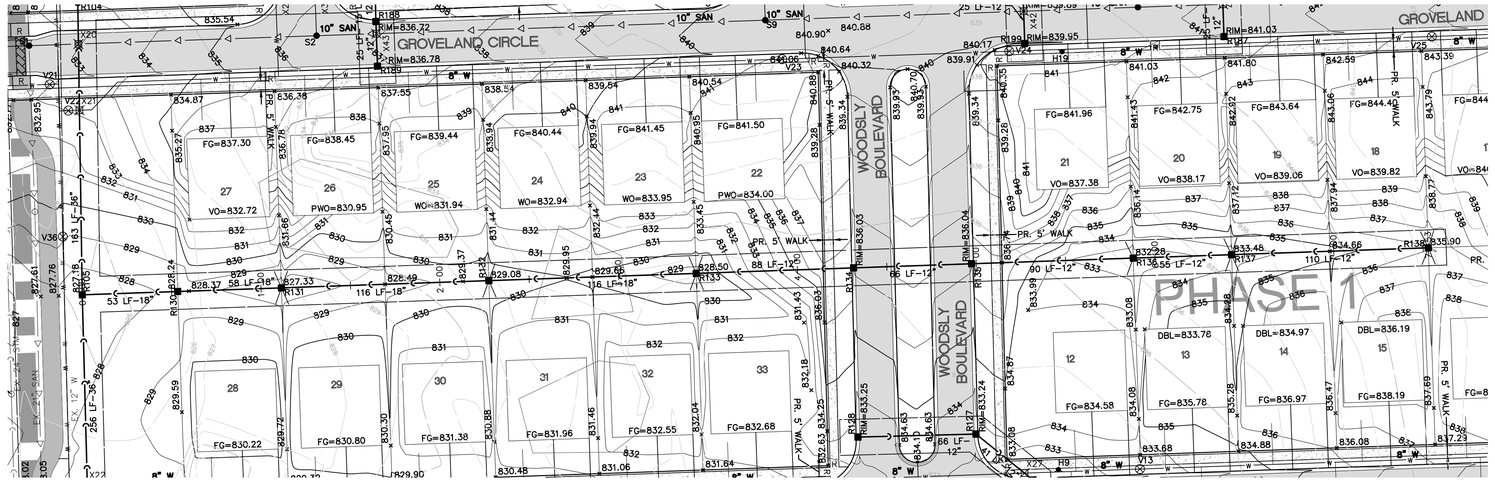
DATE
SEPTEMBER 13, 2016

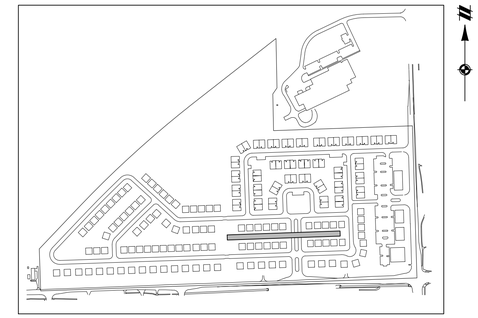
11/19/2015: PER WCRC
01/18/2016: TWP, WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

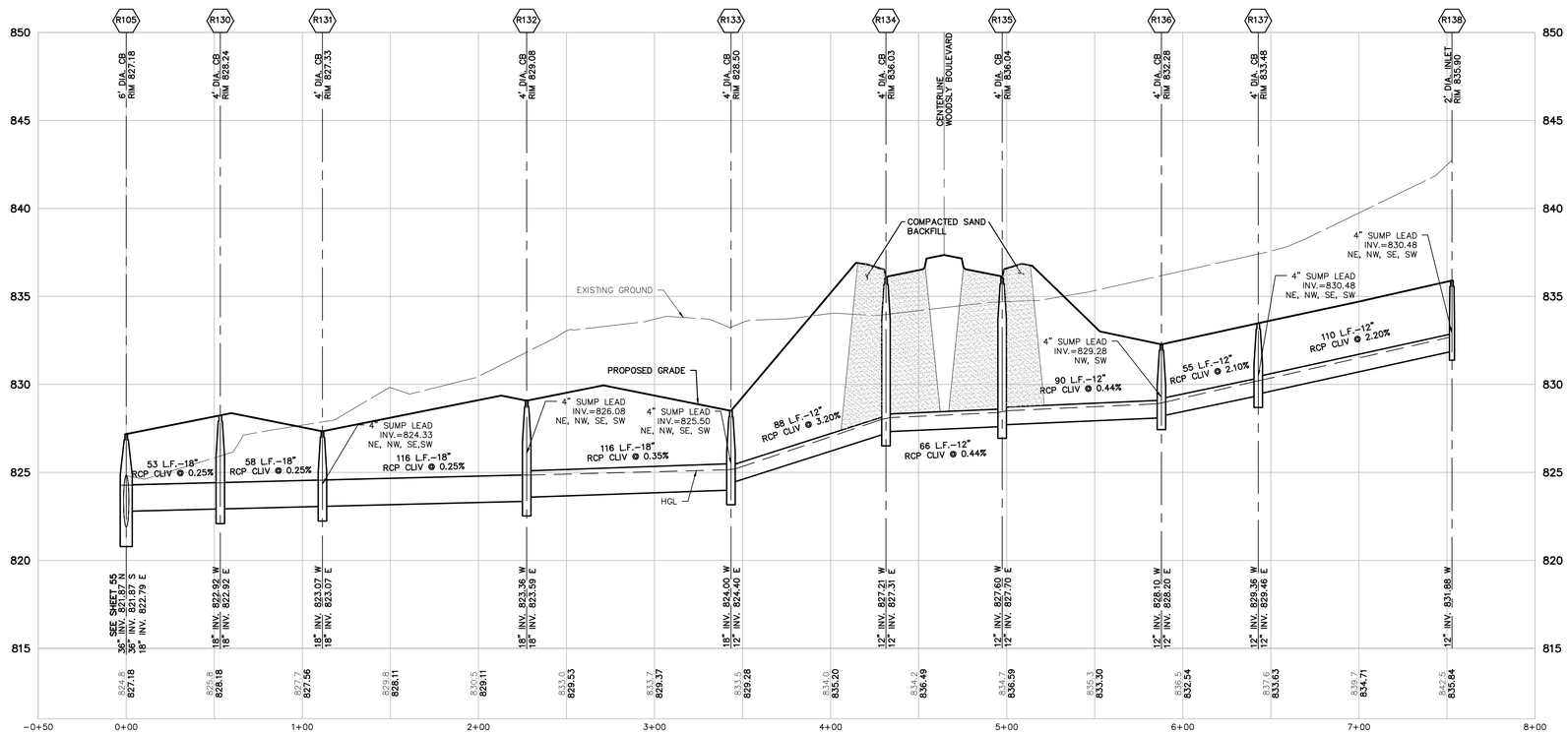
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 59





KEYMAP
1" = 500'



R105–R138
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PROPOSED RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R105–R138

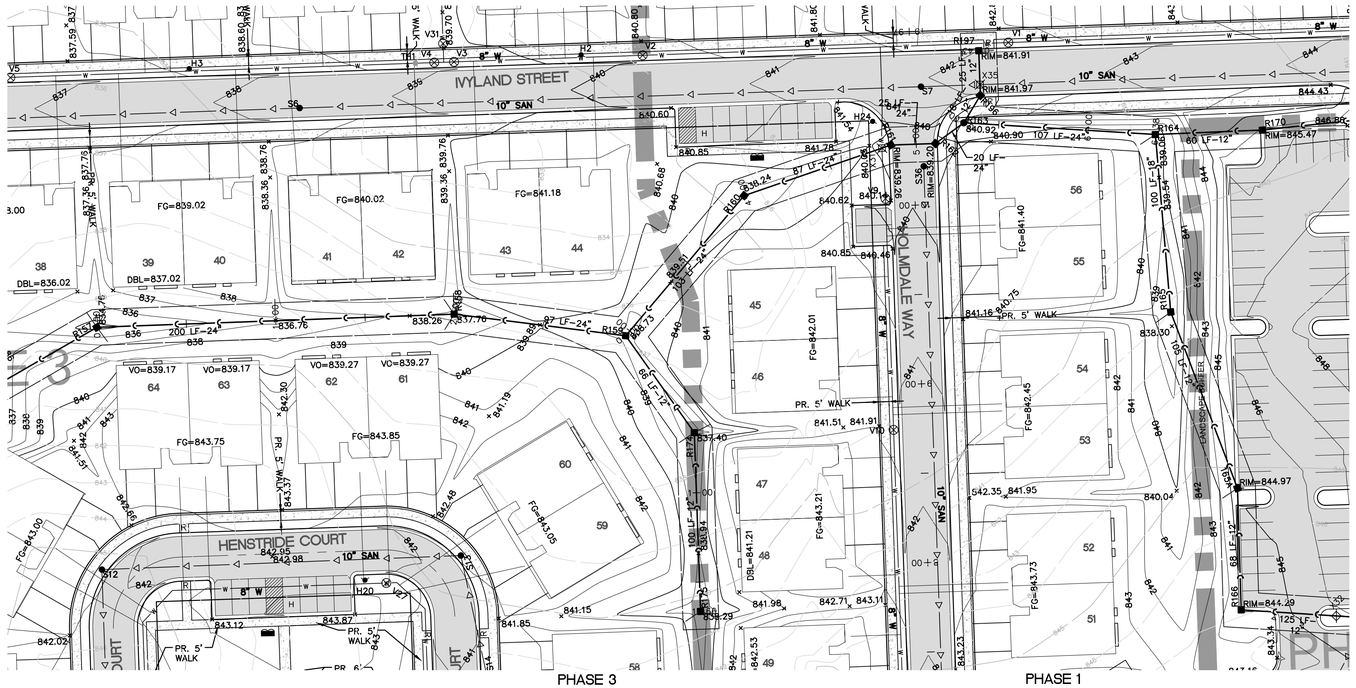
DATE
SEPTEMBER 13, 2016

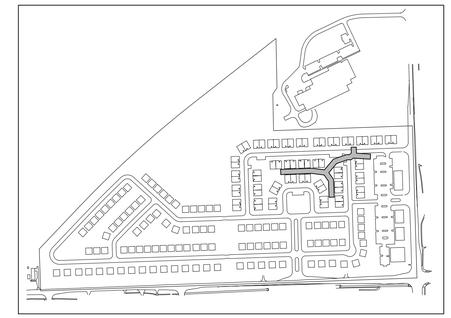
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

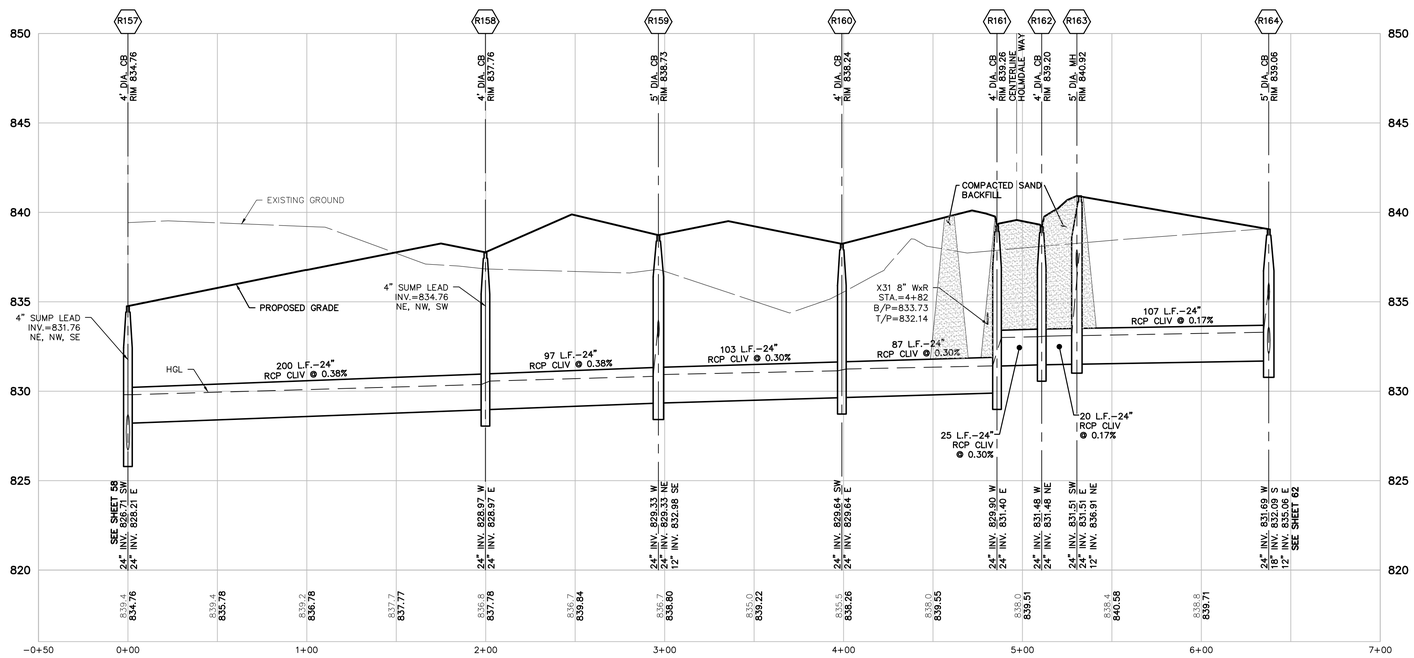
SCALE 0 20 40
SCALE: 1" = 40'

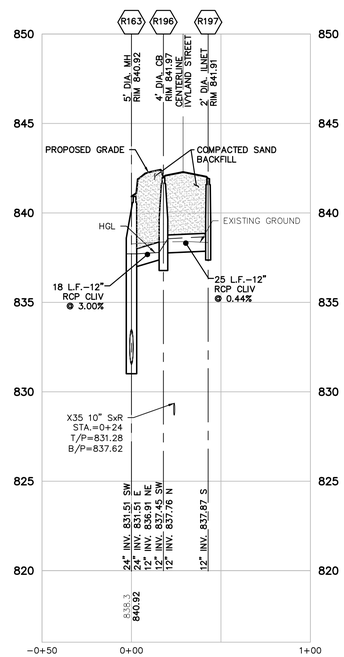
DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 60

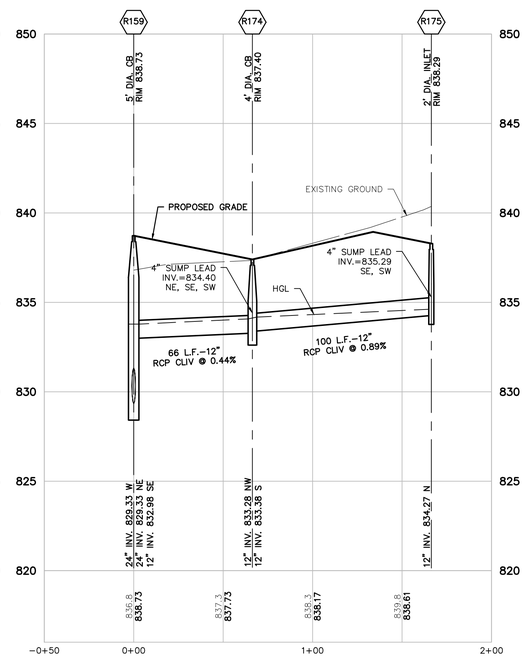




KEYMAP
1" = 500'







UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1

LEGEND

- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT
- EXISTING WETLAND
- PROPOSED RIP-RAP

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R157-R164 R163-R197 R159-R175

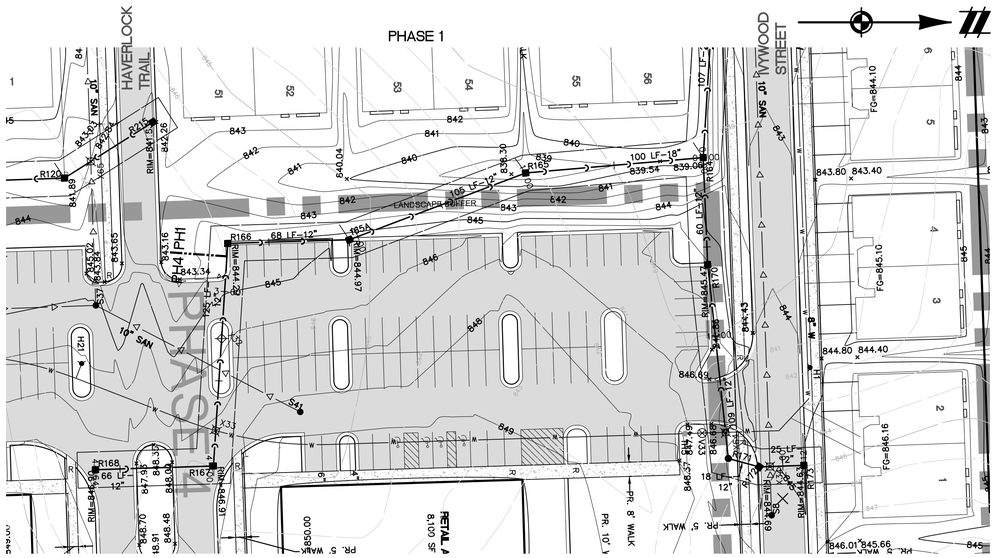
DATE
SEPTEMBER 13, 2016

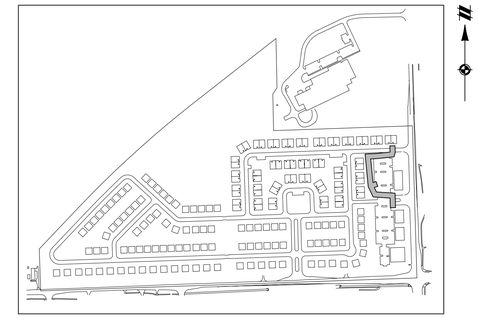
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

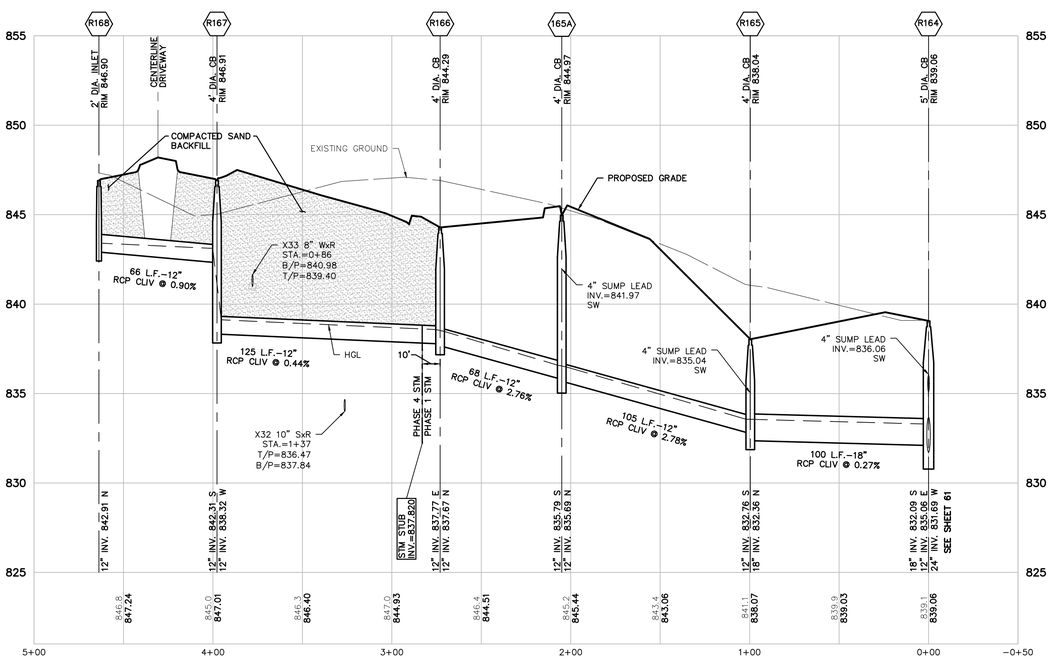
SCALE 0 20 40
SCALE: 1" = 40'

DR.	SK
CH.	SS
P.M.	MB
BOOK	
JOB	13001886.10
SHEET NO.	61

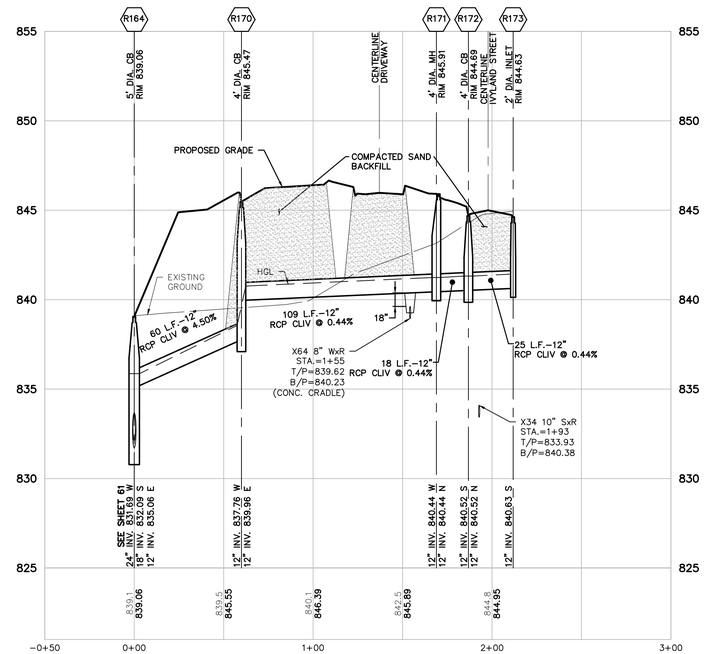




KEYMAP
1" = 500'



R168–R164
VERT: 1"=4'
HORZ: 1"=40'



R164–R173
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1 (ABOVE)

STORM SEWER = PHASE 1 / PHASE 4 (REFER TO LEFT PROFILE)

LEGEND

- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING 1' CONTOUR (801)
- EXISTING 5' CONTOUR (800)
- PROPOSED 1' CONTOUR (801)
- PROPOSED 5' CONTOUR (800)
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT
- EXISTING WETLAND
- PROPOSED RIP-RAP

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R168–R164 R164–R173

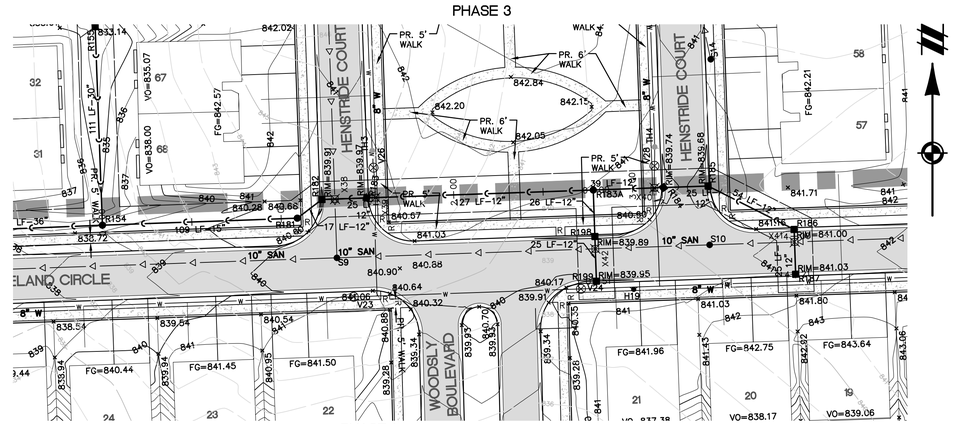
DATE
SEPTEMBER 13, 2016

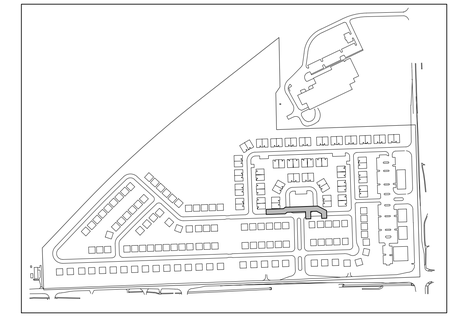
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

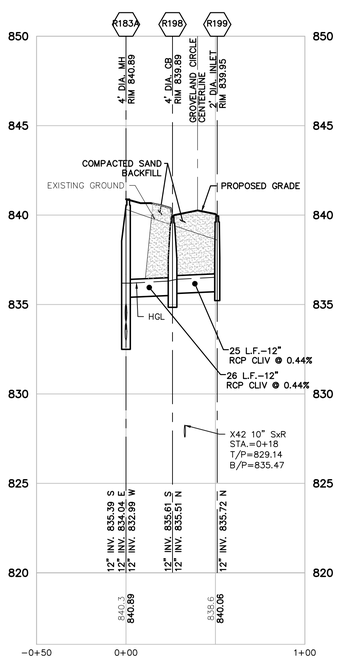
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 62

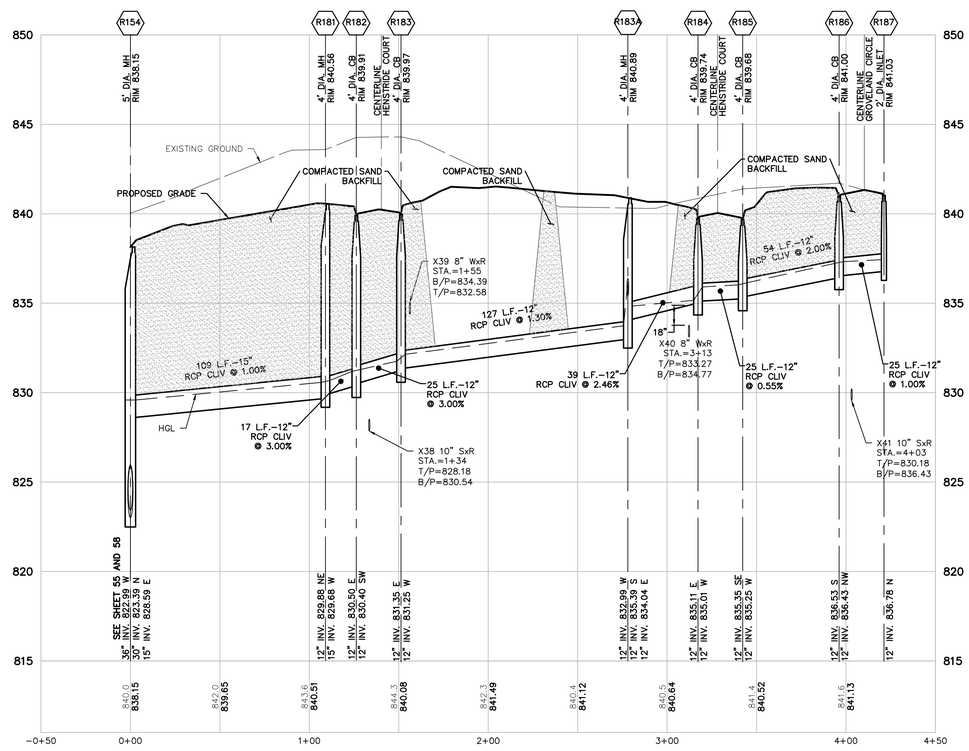




KEYMAP
1" = 500'



R183A–R199
VERT: 1"=4'
HORZ: 1"=40'



R154–R187
VERT: 1"=4'
HORZ: 1"=40'

UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
S	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
S	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PROPOSED RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R183A–R199 R154–R187

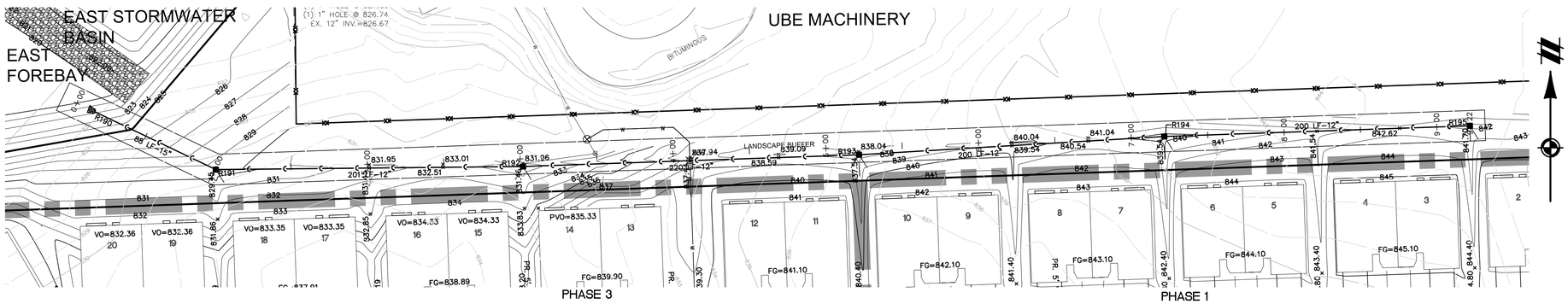
DATE
SEPTEMBER 13, 2016

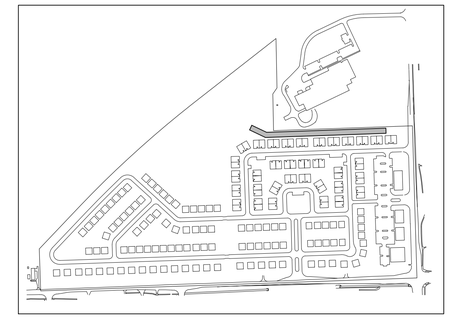
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBD

REVISIONS

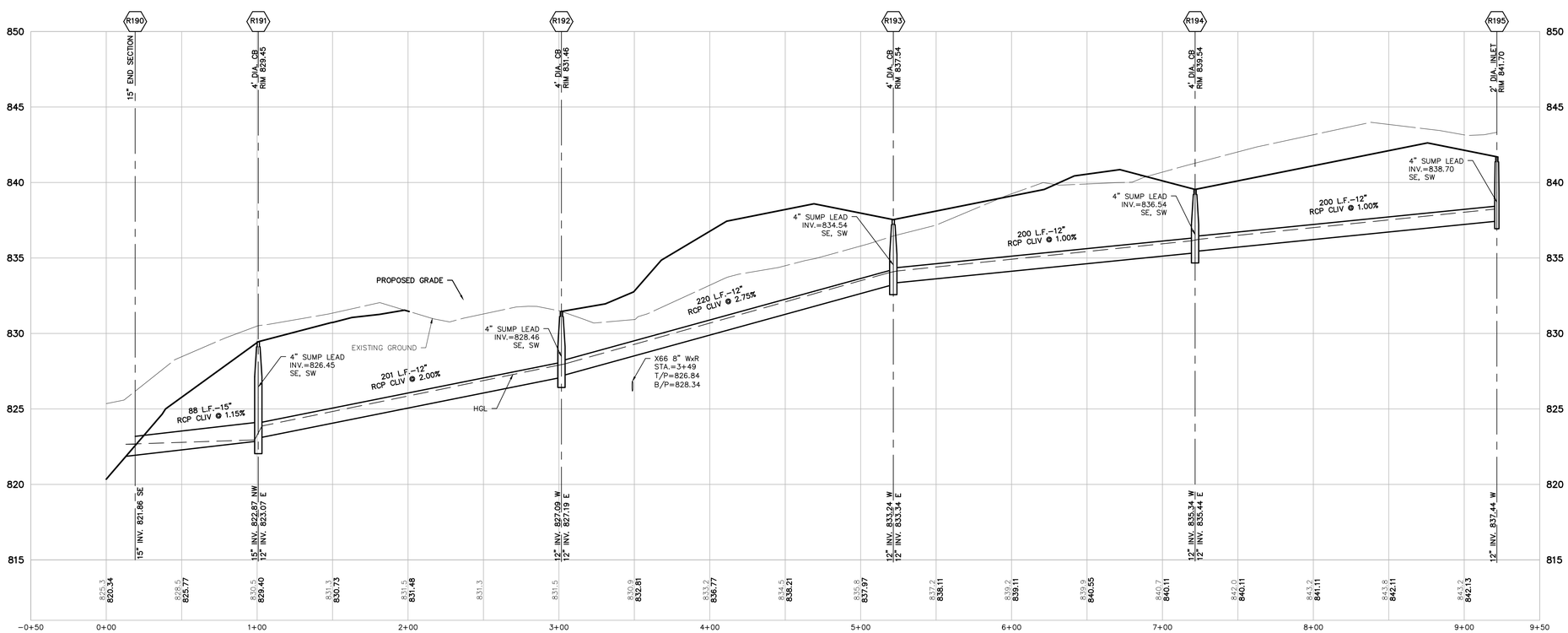
SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 63	





KEYMAP
1" = 500'



UTILITY PHASING NOTES: (THIS SHEET)

STORM SEWER = ALL PHASE 1

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER PLAN AND PROFILE
R190–R195

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP./WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 64

W1 Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 20.8 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Paved Parking Lots, roofs, driveways	C	339,684	7.8	0.95	322,700
Water Surfaces	C	65,340	1.5	1.00	65,340
Developed Open Space, Good Condition	C	500,201	11.5	0.35	175,070

Total - Sum (c)(Area) = 563,110
Area Total (sf)= 905,225
Weighted C-Sum(c)Area)/Sum(ac) or Sum(sf)= **0.62**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed Open Space, Good Condition	C	500,201	11.5	71	35,514,271
			0.0		0
			0.0		0

Total - Sum (CN)(Area) = 35,514,271
Area Total - Sum(ac) of Sum(sf)= 500,201
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)= **71**

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Paved Parking Lots, roofs, driveways	C	339,684	7.8	98	33,289,032
Impervious, Ponds	C	65,340	1.5	98	6,403,320
			0.0		0

Total - Sum (CN)(Area) = 39,692,352
Area Total - Sum(ac) of Sum(sf)= 405,024
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)= **98**

W2 First Flush Runoff Calculations (Vff)

A. Vff = (1") (1/12) (43560/1) (C) AC = **46,812** cf

W3 Predevelopment Bankfull Runoff Calculations (Vbf-pre)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Pervious Cover CN *(pasture, grassland or range, fair)*	CN =	71	
C.	S = (1000/CN)-10	S =	4.08	in
D.	Q = (P-0.25)^2/(P+0.85)	Q =	0.42	in
E.	Pervious Cover Area	Area =	905,225	sf
F.	$V_{bf\text{-}pre}$ = Q(1/12)Area	$V_{bf\text{-}pre}$ =	**31,562**	cf

W4 Pervious Cover Post-development Bankfull Runoff Calculations (Vbf-per-post)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Pervious Cover CN	CN =	71	
C.	S = (1000/CN)-10	S =	4.08	in
D.	Q = (P-0.25)^2/(P+0.85)	Q =	0.42	in
E.	Pervious Cover Area	Area =	500,201	sf
F.	$V_{bf\text{-}per\text{-}post}$ = Q(1/12)Area	$V_{bf\text{-}per\text{-}post}$ =	**17,440**	cf

W5 Impervious Cover Post-development Bankfull Runoff Calculations (Vbf-imp-post)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Impervious Cover CN	CN =	98	
C.	S = (1000/CN)-10	S =	0.20	in
D.	Q = (P-0.25)^2/(P+0.85)	Q =	2.12	in
E.	Pervious Cover Area	Area =	405,024	sf
F.	$V_{bf\text{-}imp\text{-}post}$ = Q(1/12)Area	$V_{bf\text{-}imp\text{-}post}$ =	**71,611**	cf

W6 Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	71	
C.	S = (1000/CN)-10	S =	4.08	in
D.	Q = (P-0.25)^2/(P+0.85)	Q =	2.20	in
E.	Pervious Cover Area	Area =	500,201	sf
F.	$V_{100\text{-}imp\text{-}post}$ = Q(1/12)Area	$V_{100\text{-}imp\text{-}post}$ =	**91,703**	cf

W7 Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	98	
C.	S = (1000/CN)-10	S =	0.20	in
D.	Q = (P-0.25)^2/(P+0.85)	Q =	4.87	in
E.	Pervious Cover Area	Area =	405,024	sf
F.	$V_{100\text{-}imp\text{-}post}$ = Q(1/12)Area	$V_{100\text{-}imp\text{-}post}$ =	**164,474**	cf

W8 Determine Time of Concentration (Tc-hrs)

User specified; assume 15 minutes

Total Time of Concentration (hrs) = 0.25

W9 Runoff Summary & Onsite Infiltration Requirement

A. Runoff Summary from Previous Worksheets

V_{ff} =	**46,812**	**cf***	
$V_{bf\text{-}pre}$ =	31,562	cf	
$V_{bf\text{-}per\text{-}post}$ =	17,440	cf	**Total BF Volume ($V_{BF,post}$)**
$V_{bf\text{-}imp\text{-}post}$ =	71,611	cf	89,051 cf
$V_{100\text{-}per\text{-}post}$ =	91,703	cf	**Total 100-year Volume (V_{100})**
$V_{100\text{-}imp\text{-}post}$ =	164,474	cf	256,177 cf

B. Determine Onsite Infiltration Requirement

$V_{bf\text{-}post}$ =	89,051	cf
$V_{bf\text{-}pre}$ =	31,562	cf
Bankfull Volume Difference =	**57,489**	**cf***

Onsite Infiltration Requirement (V_{rec}) = **57,489** cf

W10 Detention / Retention Requirement

A.	Q_o = 238.6 (T_c)^ -0.82	743.63	cfs/in-mi^2
B.	Total Site Area	20.8	ac
C.	Q_{100} = $Q_{100\text{-}per}$ + $Q_{100\text{-}imp}$	7.07	in
D.	Peak Flow (PF) = (Q_o-Q_{100})-A)/640	170.941	cfs
E.	Delta = PF - 0.15A	167.821	cfs
F.	V_{det} = (Delta/PF) x V_{100} *	**251,501**	**cf**

* Refer to 'Summary' below for detention requirement minus infiltration provided.

W11 Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (ft^2)	Storage Depth (ft)	Storage Volume (ft^3)	Ave. Design Infil. Rate (in/hr)	Infil. During Storm (ft^3)	Total Volume Reduction (ft^3)
Infiltration Basin	23,271	3.0	69,814	6.4	74,468	144,282

Total Volume Reduction Credit by Proposed Structural BMPs (Vinf) = **144,282** cf

Proposed BMP	Ave. Design Infil. Rate (ft/hr)*	Volume Rate (cf/hr)	Estimated Drawdown Time (hrs)
Infiltration Basin	0.5333	12,411	5.63

Summary Infiltration / Detention Summary

Total Infiltration Required per WCWRC Rules:	57,489	cf
Total Infiltration Provided:	144,282	cf
Difference:	86,793	cf
% Deficiency:	0.0%	
Pro-Rated 20% Detention Penalty:	**0.0%**	
Total Detention Required, Considering Infiltration Provided	107,219	cf
Total Detention Required w/ Penalty V100,det	**107,219**	**cf**

Basin Stage-Storage Summary:

	Elev.	Area	Avg. Area	Depth	Total Vol.	Vol exclud Infil	
	825.0	79,435	76,276	1.0	405,770	321,065	
	824.0	73,116	70,058	1.0	329,494	244,790	
	823.0	66,999	64,030	1.0	259,437	174,732	
	822.0	61,060	58,180	1.0	195,407	110,703	
	821.0	55,300	52,523	1.0	137,227	52,523	Detention
Outlet	820.0	49,745	38,193	1.0	84,705	0	Infiltration
	819.0	26,640	24,925	1.0	46,512		
	818.0	23,210	21,587	1.0	21,587		
	817.0	19,964	9,982	0.0	0		

Detention Volume Provided: **321,065** cf

Vff =	46,812 cf	Elev. =	820.89
Vbf =	89,051 cf	Elev. =	821.70
V100,det =	107,219 cf	Elev. =	821.94

Forebay Sizing

Required Volume (Vfb)=0.05*V100 **12,809 cf**

Forebay Stage-Storage Summary:

Elev.	Area	Avg. Area	Depth	Volume
821.0	20,806	19,508	1.0	19,508
820.0	18,209			

Outlet Control Structure Sizing

1. Standpipe outlet holes sizing - "first flush" runoff
First Flush discharge should be released from in 24 hours

Qff = Vff / 24 hrs / 3600 sec	Qff=	0.542	cfs
hff(ave) = 2/3 x (Vff - Xo)	hff(ave) =	0.594	ft
Aff(required) = Qff / 0.62 x sqrt(2*32.2*h)	A(required) =	0.141	sf
Selected Orifice Diameter =		2	in
Area of each orifice =		0.022	sf
Number of orifice holes provided =	=	6	**holes at elev. 820.00**

Check First Flush discharge release time

Aff(actual) =		0.1309	ft^2
Qff = A x 0.62 x sqrt(2*32.2*h) =		0.5020	cfs
Tff = Vff / (Qff x 3600)		25.9 hrs	O.K.

2. Standpipe outlet holes sizing - "Bankfull flood" discharge
Bankfull should discharge within 36 to 48 hours

Check release from first flush holes only

hbf(ave) = 2/3 x (Xbf - Xo)	hbf(ave) =	1.130	ft
Qbf = A x 0.62 x sqrt(2*32.2*h) =	Qbf =	0.692	cfs
Tbf = Vbf / (Qbf x 3600) =	Tbf =	35.7	hrs

Add holes at to decrease storage time

The first flush volume will discharge in Tff	=	25.9	hrs
Additional volume between Xbf and Xff = Vbf - V	=	42,239	cf
Target Bankfull Discharge Time =	=	36.0	hrs
Vbf = Target Discharge Time - Tff	=	10.1	hrs
Qbf - Qff = (Vbf - Vff) / ((42-Tff) x 3600)	=	1.16	cfs
Hff=(2/3)(Xbf-Xff)+(Xff-Xo)	=	1.43	ft
Q_u=A_u(.62)(SQRT(2gh)	=	0.78	cfs
V_1=$T_{ram}Q_u$	=	28,292	cf
V_2=V_{ram}-V_1	=	13,947	
Q_2=V_2/T_{ram}	=	0.38	cfs
H_u=(2/3)(X_u-X_o)	=	0.54	
A_u(required)	=	0.105	sf
Selected Orifice Diameter =		2	in
Area of each orifice =		0.0218	sf
Number of orifice holes required =	=	4	**holes at elev. 820.89**

3. Standpipe outlet holes sizing - "100-yr flood" discharge

Q100 = Qa = 0.15 x Drainage Area	Q100 =	3.120	cfs
Release from above holes			
hff = (Xprovided-Xo)	hff =	1.940	ft
hbf = (Xprovided-Xff)	hbf =	1.049	ft
Q = A x 0.62 x sqrt(64.4*hff) + A x 0.62 x sqrt(64.4*hbf) =		1.352	cfs
Remaining flow =	Q100-Q=	1.768	cfs
A = Q100 /(.62 x sqrt(2*32.2*h))	A(required) =	0.718	sf
Selected Orifice Diameter =		2	in
Area of each orifice =		0.0218	sf
Number of orifice holes required =	=	32	**holes at elev. 821.70**

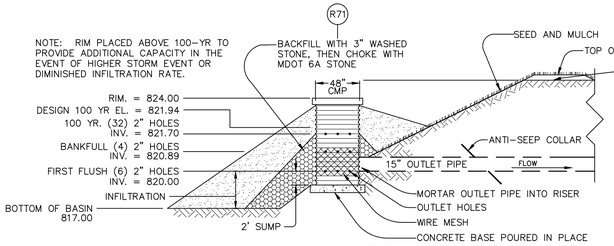
4. Riser Outlet Pipe Design
Outlet pipe designed to handle the 100-year restricted flow

100-year restricted flow =	Q =	3.12	cfs
Choose outflow pipe diameter =	d =	15	in
Choose outflow pipe slope =	S =	0.24	%
Assume roughness factor	n =	0.013	
Flow velocity at 100-yr restricted flow (Mannings	V =	2.58	fps
Design Pipe Capacity =	=	3.17	cfs

Basin Overflow Weir

Drainage Area, A =	20.8	ac
C-Factor (C) =	0.62	
Time of Conc. (T) =	29.1	min
Intensity (I) I = 275/(T+25)	5.08	in/hr
Design Flow (Q) = C x I x A	65.55	cfs
Weir Coef (C)=	3.367	
Invert of Weir =	824.5	ft
Height of Weir (H) =	0.5	ft
Min. Width of Weir (B) =	55.1	ft

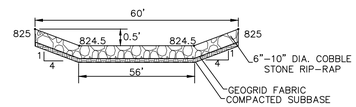
L = Q/(C x H^(3/2))



WEST BASIN OUTLET SCHEMATIC
NO SCALE

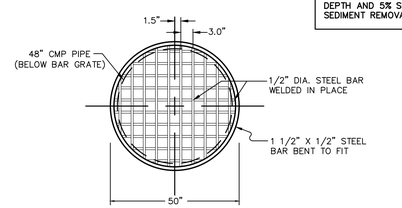
LEGEND

801	EXISTING 1' CONTOUR
820	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE BOUNDARY LINE
C C	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C C	PROPOSED STORM SEWER
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
890	PROPOSED ELEVATION
	PROPOSED SILT FENCE
	EXISTING CATCH BASIN/INLET
	EXISTING WETLAND
	PROPOSED RIP-RAP



ARMORED BASIN OVERFLOW WEIR
NO SCALE

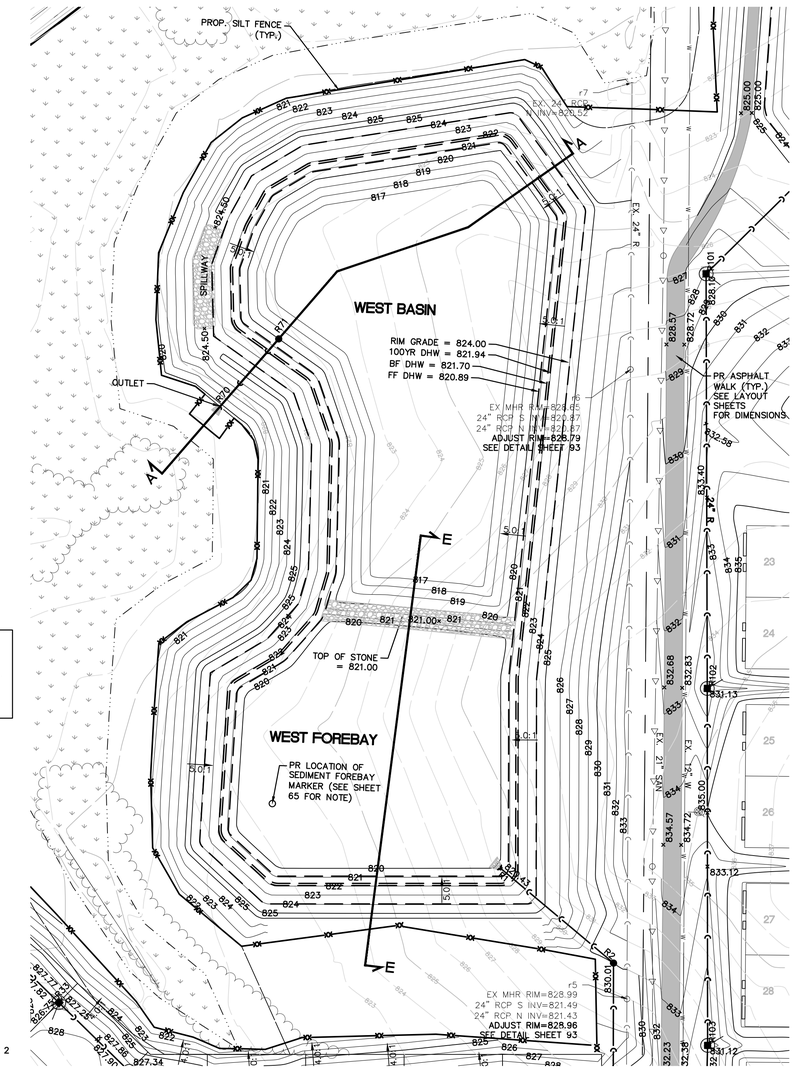
NOTE:
PROVIDE PERMANENT VERTICAL DEPTH MARKER (NON-CORROSIVE) TO MEASURE SEDIMENT DEPOSITION WITHIN FOREBAY. PLACE HORIZONTAL MARKING AT ELEV. 820.7 (LESSER OF 12-INCH DEPTH AND 5% STORAGE VOLUME) TO INDICATE SEDIMENT REMOVAL IS NECESSARY.

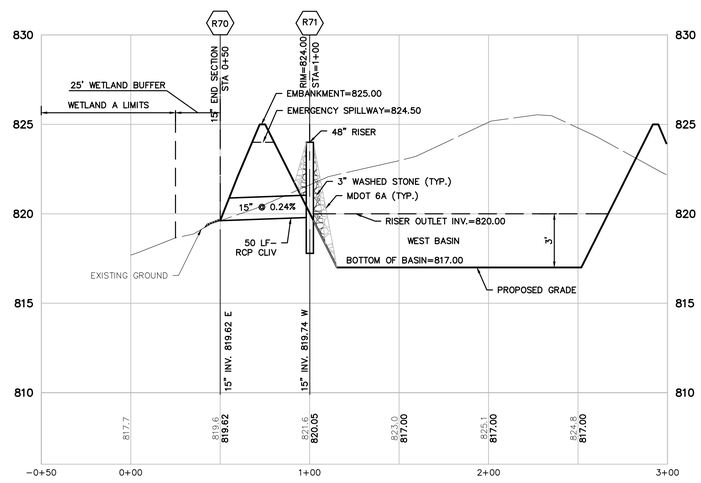


NOTE:
1. BAR GRATE IS TO BE REMOVABLE
2. APPROXIMATE WEIGHT OF GRATE IS 70 LBS.

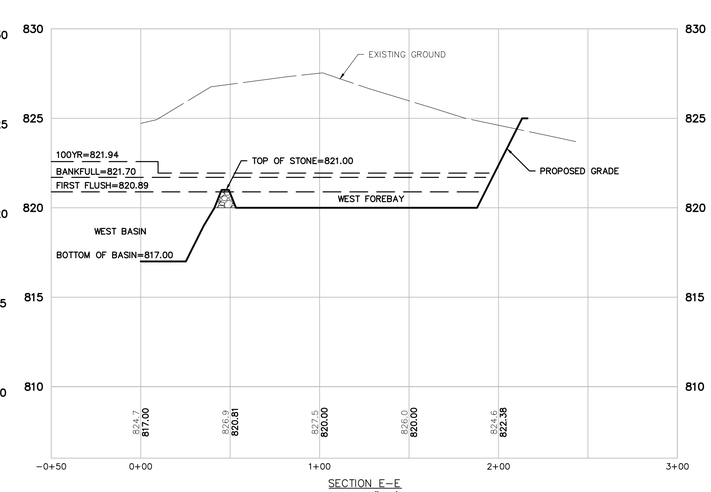
BAR GRATE DETAIL
NO SCALE

NOTE:
WEST BASIN/FOREBAY CONSTRUCTED IN PHASE 2





SECTION A-A
VERT: 1"=4'
HORZ: 1"=40'



SECTION E-E
VERT: 1"=4'
HORZ: 1"=40'

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER WEST BASIN GRADING

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR.	SK	CH. SS
P.M.	MB	
BOOK		
JOB	13001886.10	
SHEET NO.	65	

W1	Determining Post-Development Cover Types, Areas, Curve Numbers and runoff coefficients

Total Contributing Drainage Area = 28.7 Acres

Rational Method Variables

Cover Type	Soil Type	Area (sf)	Area (ac)	Runoff Coef	(c)(Area)
Paved Parking Lots, roofs, driveways	C	579,055	13.3	0.95	550,102
Water Surfaces	C	74,052	1.7	1.00	74,052
Developed Open Space, Good Condition	C	598,780	13.7	0.35	209,573
				Total - Sum (c)(Area) =	833,727
				Area Total (sf)=	1,251,887
				Weighted C-Sum(c)(Area)/Sum(ac) or Sum(sf)=	**0.67**

NRCS Variables

Pervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Developed Open Space, Good Condition	C	598,780	13.7	71	42,513,380
			0.0		0
			0.0		0
Total - Sum (CN)(Area) =					42,513,380
Area Total - Sum(ac) of Sum(sf)=					598,780
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**71**

Impervious Cover Type	Soil Type	Area (sf)	Area (ac)	Curve Number	(CN)(Area)
Paved Parking Lots, roofs, driveways	C	579,055	13.3	98	56,747,390
Impervious, Ponds	C	74,052	1.7	98	7,257,096
			0.0		0
Total - Sum (CN)(Area) =					64,004,486
Area Total - Sum(ac) of Sum(sf)=					653,107
Weighted CN-Sum(CN)(Area)/Sum(ac) or Sum(sf)=					**98**

W2	First Flush Runoff Calculations (Vff)

A.	Vff = (1") (1/12) (43560/1) (C) AC =		**69,801**	cf

W3	Predevelopment Bankfull Runoff Calculations (Vbf-pre)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Pervious Cover CN *(pasture, grassland or range, fair)*	CN =	71	
C.	S = (1000/CN)-10	S =	4.08	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	0.42	in
E.	Pervious Cover Area	Area =	1,251,887	sf
F.	V_{bf-pre} = Q(1/12)Area	V_{bf-pre} =	**43,649**	cf

W4	Pervious Cover Post-development Bankfull Runoff Calculations (Vbf-per-post)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Pervious Cover CN	CN =	71	
C.	S = (1000/CN)-10	S =	4.08	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	0.42	in
E.	Pervious Cover Area	Area =	598,780	sf
F.	$V_{bf-per-post}$ = Q(1/12)Area	$V_{bf-per-post}$ =	**20,877**	cf

W5	Impervious Cover Post-development Bankfull Runoff Calculations (Vbf-imp-post)

A.	2 year/24 hour storm event	P =	2.35	in
B.	Impervious Cover CN	CN =	98	
C.	S = (1000/CN)-10	S =	0.20	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	2.12	in
E.	Pervious Cover Area	Area =	653,107	sf
F.	$V_{bf-imp-post}$ = Q(1/12)Area	$V_{bf-imp-post}$ =	**115,473**	cf

W6	Pervious Cover Post-development 100-year Storm Runoff Calculations (V100-per-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	71	
C.	S = (1000/CN)-10	S =	4.08	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	2.20	in
E.	Pervious Cover Area	Area =	598,780	sf
F.	$V_{100-imp-post}$ = Q(1/12)Area	$V_{100-imp-post}$ =	**109,776**	cf

W7	Impervious Cover Post-development 100-year Storm Runoff Calculations (V100-imp-post)

A.	100 year storm event	P =	5.11	in
B.	Pervious Cover CN	CN =	98	
C.	S = (1000/CN)-10	S =	0.20	in
D.	Q = (P-0.2S)^2/(P+0.8S)	Q =	4.87	in
E.	Pervious Cover Area	Area =	653,107	sf
F.	$V_{100-imp-post}$ = Q(1/12)Area	$V_{100-imp-post}$ =	**265,216**	cf

W8	Determine Time of Concentration (Tc-hrs)

User specified; assume 15 minutes

Total Time of Concentration (hrs) = 0.25

W9	Runoff Summary & Onsite Infiltration Requirement

A. Runoff Summary from Previous Worksheets

V_{ff} =	**69,801**	cf*		
V_{bf-pre} =	43,649	cf		
$V_{bf-per-post}$ =	20,877	cf	**Total BF Volume ($V_{bf-post}$)**	
$V_{bf-imp-post}$ =	115,473	cf	136,351	cf
$V_{100-per-post}$ =	109,776	cf	**Total 100-year Volume (V_{100})**	
$V_{100-imp-post}$ =	265,216	cf	374,992	cf

B. Determine Onsite Infiltration Requirement

$V_{bf-post}$ =	136,351	cf
V_{bf-pre} =	43,649	cf
Bankfull Volume Difference =	**92,702**	cf*

Onsite Infiltration Requirement (V_{inf}) = **92,702** cf

W10	Detention / Retention Requirement

A.	$Q_p = 238.6 (T_c)^{-0.82}$	743.63	cfs/in-mi^2
B.	Total Site Area	28.7	ac
C.	$Q_{100} = Q_{100-per} + Q_{100-imp}$	7.07	in
D.	Peak Flow (PF) = $(Q_p \cdot Q_{100} \cdot A)/640$	235.866	cfs
E.	Delta = PF - 0.15A	231.561	cfs
F.	V_{det} = (Delta/PF) x V_{100} *	**368,148**	cf

* Refer to 'Summary' below for detention requirement factoring in infiltration provided.

W11	Determine Applicable BMPs and Associated Volume Credits

Proposed BMP	Area (ft²)	Storage Depth (ft)	Storage Volume (ft³)	Ave. Design Infil. Rate (in/hr)	Infil. During Storm (ft³)	Total Volume Reduction (ft³)
Infiltration Basin	29,353	2.0	58,706	23.5 *	344,898	403,604

Total Volume Reduction Credit by Proposed Structural BMPs (Vinf) = **403,604** cf

* Per Geotechnical investigation, includes a factor of safety of 2. Another factor of safety of 2 added due to high rate.

Proposed BMP	Ave. Design Infil. Rate (ft/hr)*	Volume Rate (cf/hr)	Estimated Drawdown Time (hrs)
Infiltration Basin	1.9583	57,483	1.02

W12	*Not Used*

W13	*Determine Reduced Infiltration Volume during Design Storm and Overflow Volume for Rim Grade*

Due to the volume of infiltration provided per W11, there are no outlet holes required in the standpipe riser to satisfy first flush, bankfull, and 100-year storage requirements. A reasonable overflow elevation is required in the event when the storage and infiltration capacity of the basin is exceeded. To determine a reasonable volume of storage, a reduced infiltration rate is assumed and the associated infiltration volume during the storm event at that rate is used below to determine the remaining volume to be stored in the basin, with the overflow standpipe rim then set at the resulting elevation.

Proposed BMP	*Area (ft²)*	*Storage Depth (ft)*	*Storage Volume (ft³)*	*Reduced Infil. Rate (in/hr)*	*Infil. During Storm (ft³)*	
(Same Basin as per W11 above)	*29,353*	*-*	*-*	*8.0 ***	*117,412*	*= Vinf'*

*** Reduced infiltration rate used to compute conservative infiltration volume during the design storm.*

Subtract Vinf' from Vdet to determine volume (cf) at which to set overflow rim elev: *250,736* *= Vover*

Summary	Infiltration / Detention Summary

Total Infiltration Required per WCWRC Rules:	92,702	cf
Total Infiltration Provided:	403,604	cf
Difference:	310,902	cf
% Deficiency:	0.0%	
Pro-Rated 20% Detention Penalty:	**0.0%**	
Total Detention Required, Considering Infiltration Provided	0	cf
Total Detention Required w/ Penalty:	**0**	cf
Total Volume Provided to Overflow Rim per W13 (Vover):	*250,736*	*cf*

Basin Stage-Storage Summary:

Elev.	Area	Avg. Area	Depth	Total Vol.	Vol exclud Infil	
825.0	70,815	68,311	1.0	322,478	260,286	
824.0	65,807	63,436	1.0	254,167	191,975	
823.0	61,065	51,687	1.0	190,731	128,539	
822.0	42,308	40,346	1.0	139,044	76,852	
821.0	38,384	36,506	1.0	98,698	36,506	Detention
820.0	34,628	32,839	1.0	62,192	0	Infiltration
819.0	31,050	29,353	1.0	29,353		
818.0	27,656	0	0.0	0		

Total Volume Provided: **322,478** cf

Vff =	69,801 cf	Elev. =	820.21		
Vbf =	136,351 cf	Elev. =	821.93		
Vover =	250,736 cf	Elev. =	823.95	>>> Set rim at	824.00

Forebay Sizing

Required Volume (Vfb)=0.05*V100 **18,750 cf**

Forebay Stage-Storage Summary:

Elev.	Area	Avg. Area	Depth	Volume
822.0	13,093	11,878	1.0	21,428
821.0	10,662	9,550	1.0	9,550
820.0	8,438			

Vfb Elev.= 821.77

Outlet Control Structure Sizing

1. Standpipe outlet holes sizing - "first flush" runoff
First Flush discharge should be released from in 24 hours

Note: First Flush volume provided by infiltration - no outlet holes are proposed.

Qff = Vff / 24 hrs / 3600 sec	Qff=	0.808	cfs	
hff(ave) = 2/3 x (Xff - Xo)	hff(ave) =	0.139	ft	
Aff(required) = Qff / 0.62 x sqrt(2*32.2*h)	A(required) =	0.436	sf	
Selected Orifice Diameter =		**0**	in	
Area of each orifice =		0.000	sf	
Number of orifice holes required =		**0**	holes at elev.	**820.00**

2. Standpipe outlet holes sizing - "Bankfull flood" discharge
Bankfull should discharge within 36 to 48 hours

Note: Bankfull volume provided by infiltration - no outlet holes are proposed.

Selected Orifice Diameter =		**0**	in	
Area of each orifice =		0.0000	sf	
Number of orifice holes required =	=	**0**	holes at elev.	**820.21**

3. Standpipe outlet holes sizing - "100-yr flood" discharge

Note: Detention volume provided by infiltration - proposed outlet holes are provided for the 100-year rate and storage volume (Vover) using the reduced infiltration rate in W13 above.

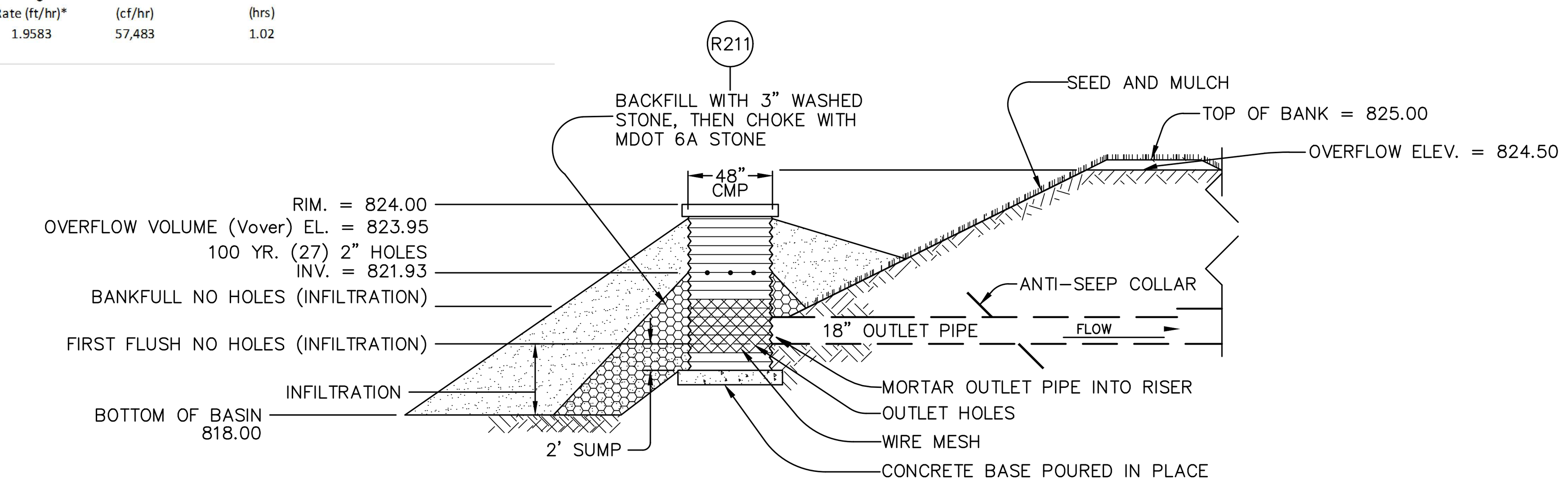
Q100 = Qa	Q100 =	4.305	cfs	
Release from above holes				
hff = (X100-Xo)	hff =	3.950	ft	
hbf = (X100-Xff)	hbf =	3.741	ft	
Q = A x 0.62 x sqrt(64.4*hff) + A x 0.62 x sqrt(64.4*hbf) =		0.000	cfs (no holes provided)	
Remaining flow =	Q100-Q=	4.305	cfs	
A = Q100 /(.62 x sqrt(2*32.2*h))	A(required) =	0.609	sf	
Selected Orifice Diameter =		**2**	in	
Area of each orifice =		0.0218	sf	
Number of orifice holes required =	=	**27**	holes at elev.	**821.93**

4. Riser Outlet Pipe Design
Outlet pipe designed to handle the 100-year restricted flow

100-year restricted flow =	Q =	4.31	cfs
Choose outflow pipe diameter =	d =	**18**	in
Choose outflow pipe slope =	S =	**0.18**	%
Assume roughness factor	n =	0.013	
Flow velocity at 100-yr restricted flow (Mannings) =	V =	2.52	fps
Design Pipe Capacity =	=	4.46	cfs

Basin Overflow Weir

Drainage Area, A =		28.7	ac
C-Factor (C) =		0.67	
Time of Conc. (T) =		31	min
Intensity (I)	I = 275/(T+25)	4.91	in/hr
Design Flow (Q) =	C x I x A	94.43	cfs
Weir Coef (C)=		3.367	
Invert of Weir =		**824.5**	
Height of Weir (H) =		0.5	
Min. Width of Weir (B) =		**79.3**	ft
L = Q/(C x H^(3/2))			

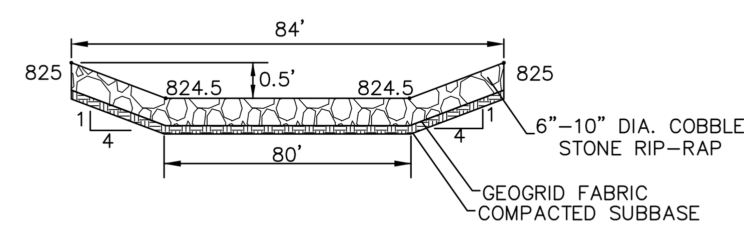


EAST BASIN OUTLET SCHEMATIC
NO SCALE

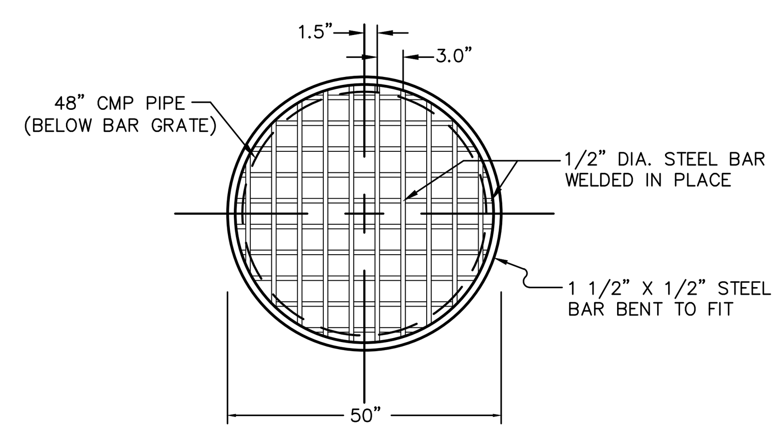
LEGEND

801 / 800	EXISTING 1' CONTOUR / EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	BOUNDARY LINE
	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PROPOSED STORM SEWER
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
890	PROPOSED ELEVATION
	PROPOSED SILT FENCE
	EXISTING CATCH BASIN/INLET
	EXISTING WETLAND
	PROPOSED RIP-RAP

NOTE:
PROVIDE PERMANENT VERTICAL DEPTH MARKER (NON-CORROSIVE) TO MEASURE SEDIMENT DEPOSITION WITHIN FOREBAY. PLACE HORIZONTAL MARKING AT EL 821.0 (LESSER OF 12-INCHES AND FOREBAY VOLUME ELEVATION) TO INDICATE SEDIMENT REMOVAL IS NECESSARY.

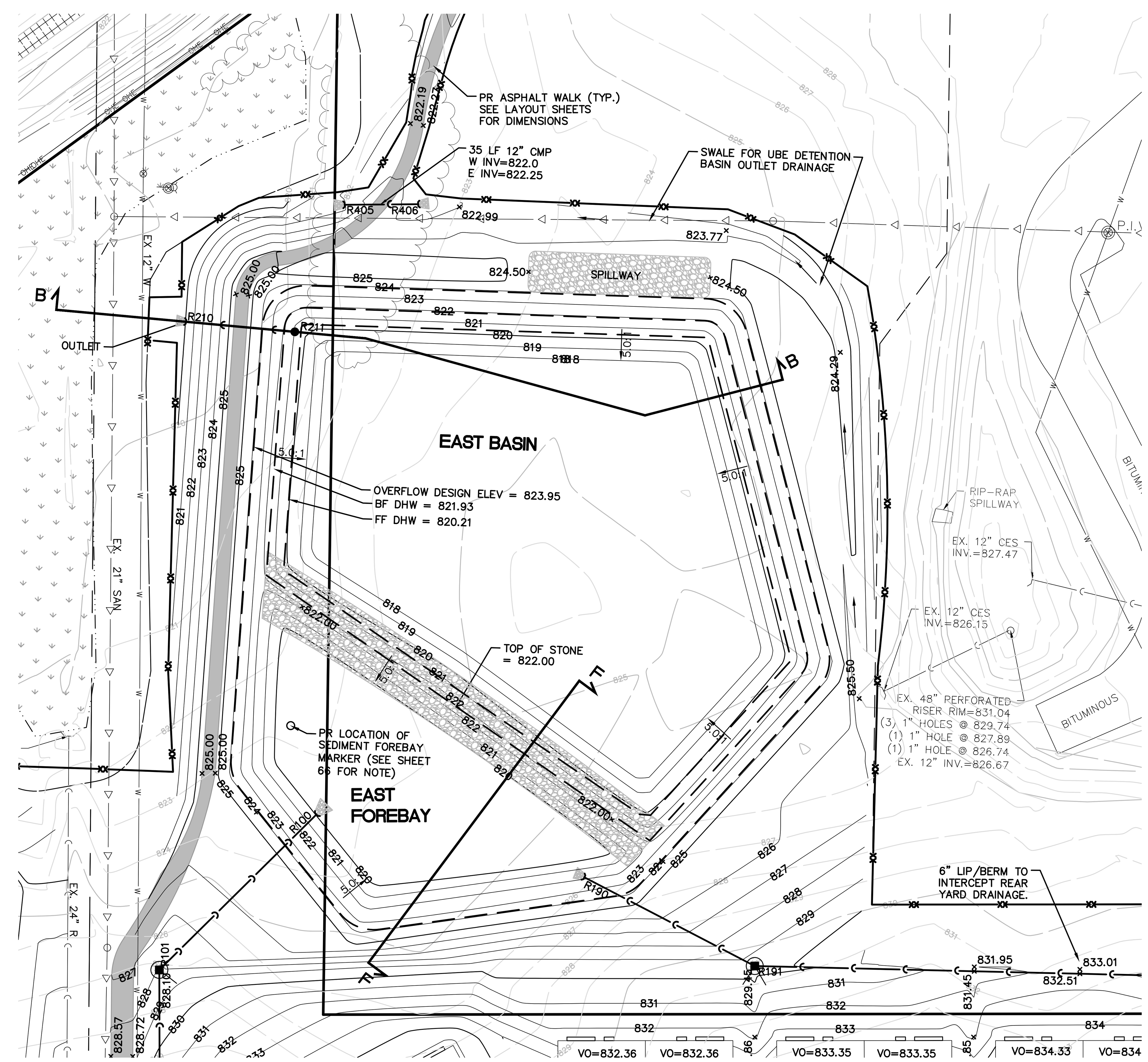


ARMORED BASIN OVERFLOW WEIR
NO SCALE

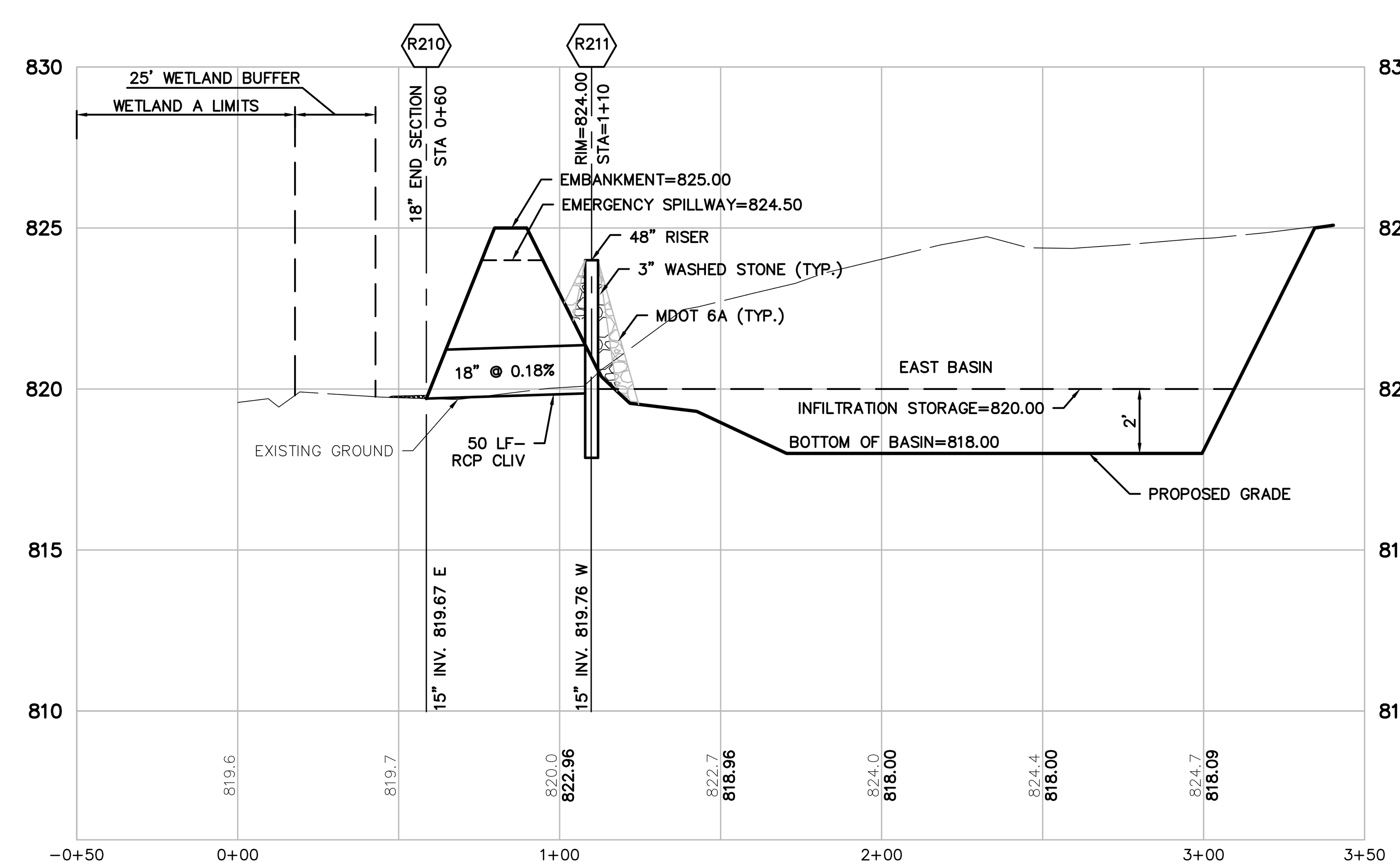


NOTE:
1. BAR GRATE IS TO BE REMOVABLE
2. APPROXIMATE WEIGHT OF GRATE IS 70 LBS.

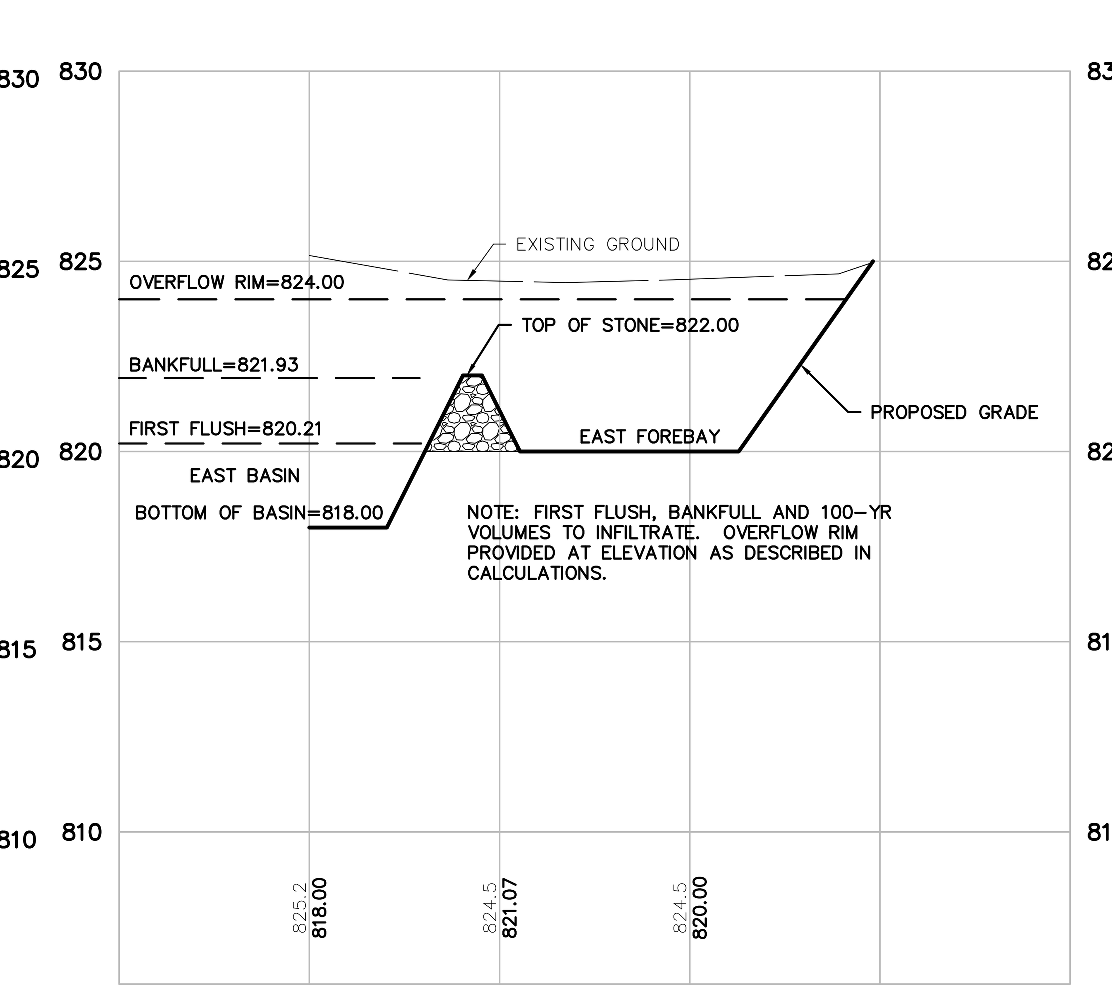
BAR GRATE DETAIL
NO SCALE



NOTE:
EAST BASIN/FOREBAY CONSTRUCTED IN PHASE 1



SECTION B-B
VERT: 1"=4'
HORZ: 1"=40'



SECTION F-F
VERT: 1"=4'
HORZ: 1"=40'

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORMWATER EAST
BASIN GRADING

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		
SHEET NO.	66		

...G.DWG 11/16/2016 4:58 PM STEPHEN KESSEL

STORMWATER SEWER CONVEYANCE SYSTEM DESIGN

WEST BASIN

I = B/(T+D) ^E   B = 175.0   D = 25.0   E = 1
C = varies
T = 20 (min.)

FROM MH INPUT	TO MH	INCRE-MENT ACRES (A)	C	EQUIV. AREA 100% ACRES CA	TOTAL AREA 100% ACRES SUM CA	T TIME (MIN.)	I (IN PER HOUR)	Q=CIA C.F.S. FLOW	CAPAC-ITY OF SEWER (C.F.S.)	DIAM. OF PIPE (IN.)	LENGTH OF LINE (FT.)	SLOPE OF PIPE (%)	MIN HG BASED ON "Q" (%)	HG FOR 3.0 FPS GIVEN "D" (%)	ACTUAL HG (%)	VEL. FLOW FULL (FT./SEC.)	TIME OF FLOW (MIN.)	H.G.L. ELEV. UPPER END	H.G.L. ELEV. LOWER END	GROUND ELEV. UPPER END	GROUND ELEV. LOWER END	INVERT ELEV. UPPER END	INVERT ELEV. LOWER END
WEST STORM WATER BASIN																							
R66	R65	0.93	0.69	0.65	0.65	20.00	3.89	2.52	3.65	15	25	0.32	0.15	0.32	0.32	3.0	0.1	823.23	823.15	826.30	826.24	822.18	822.10
R65	R32	1.02	0.68	0.70	1.34	20.10	3.88	5.21	5.25	18	108	0.25	0.25	0.25	0.25	3.0	0.6	823.15	822.88	826.24	826.86	821.90	821.62
R63	R62	0.66	0.61	0.40	0.40	20.00	3.89	1.57	3.65	15	25	0.32	0.06	0.32	0.32	3.0	0.1	823.91	823.83	826.93	826.87	822.81	822.73
R62	R61	0.74	0.67	0.50	0.90	20.10	3.88	3.49	9.33	24	37	0.17	0.02	0.17	0.17	3.0	0.2	823.83	823.77	826.87	827.88	822.23	822.17
R61	R60	0.11	0.64	0.07	0.97	20.30	3.86	3.73	9.33	24	25	0.17	0.03	0.17	0.17	3.0	0.1	823.67	823.62	827.88	827.82	822.07	822.02
R60	R38	0.14	0.74	0.10	1.07	20.40	3.85	4.13	9.33	24	96	0.17	0.03	0.17	0.17	3.0	0.5	823.54	823.37	827.82	828.78	821.92	821.76
R59	R23	0.21	0.29	0.06	0.06	20.00	3.89	0.24	5.25	18	64	0.25	0.00	0.25	0.25	3.0	0.4	823.76	823.60	826.84	828.36	822.56	822.40
R55	R54	0.36	0.81	0.29	0.29	20.00	3.89	1.14	2.36	12	25	0.44	0.10	0.44	0.44	3.0	0.1	827.22	827.11	830.49	830.43	826.42	826.31
R54	R52	0.15	0.75	0.11	0.40	20.10	3.88	1.57	2.36	12	76	0.44	0.19	0.44	0.44	3.0	0.4	827.01	826.68	830.43	830.29	826.21	825.88
R52	R37	0.00	0.00	0.00	0.40	20.50	3.85	1.57	4.85	12	74	1.85	0.19	0.44	0.44	6.2	0.2	826.58	825.20	830.29	828.67	825.78	824.40
R50	R49	0.68	0.68	0.46	0.46	20.00	3.89	1.78	2.36	12	25	0.44	0.25	0.44	0.44	3.0	0.1	829.67	829.56	832.87	832.93	828.87	828.76
R49	R46	0.36	0.69	0.25	0.71	20.10	3.88	2.75	4.06	12	206	1.30	0.59	0.44	0.59	5.2	0.7	829.36	826.68	832.93	830.09	828.56	825.88
R45	R44	0.13	0.44	0.06	0.06	20.00	3.89	0.22	7.56	12	68	4.50	0.00	0.44	0.44	9.6	0.1	828.44	825.51	833.07	828.70	827.64	824.60
R48	R47	0.44	0.69	0.30	0.30	20.00	3.89	1.18	3.65	15	25	0.32	0.03	0.32	0.32	3.0	0.1	827.21	827.13	830.33	830.39	826.21	826.13
R47	R46	0.66	0.66	0.43	0.74	20.10	3.88	2.86	5.25	18	119	0.25	0.07	0.25	0.25	3.0	0.7	826.98	826.68	830.39	830.09	825.78	825.48
R46	R44	0.60	0.36	0.22	1.66	20.80	3.82	6.36	6.64	18	69	0.40	0.37	0.25	0.37	3.8	0.3	825.76	825.51	830.09	828.70	824.58	824.30
R44	R43	0.34	0.39	0.13	1.85	21.10	3.80	7.04	9.33	24	114	0.17	0.10	0.17	0.17	3.0	0.6	825.51	825.31	828.70	829.91	823.90	823.71
R43	R42	0.33	0.40	0.13	1.98	21.70	3.75	7.44	9.33	24	110	0.17	0.11	0.17	0.17	3.0	0.6	825.22	825.03	829.91	830.24	823.61	823.42
R42	R41	0.18	0.43	0.08	2.06	22.30	3.70	7.63	9.33	24	55	0.17	0.11	0.17	0.17	3.0	0.3	825.03	824.93	830.24	829.14	823.42	823.33
R41	R40A	0.27	0.37	0.10	2.16	22.60	3.68	7.94	9.33	24	55	0.17	0.12	0.17	0.17	3.0	0.3	824.93	824.84	829.14	828.04	823.33	823.23
R40A	R40	0.17	0.53	0.09	2.25	22.90	3.65	8.23	9.33	24	55	0.17	0.13	0.17	0.17	3.0	0.3	824.84	824.74	828.04	828.18	823.23	823.14
R40	R39	0.25	0.45	0.11	2.36	23.20	3.63	8.58	9.33	24	84	0.17	0.14	0.17	0.17	3.0	0.5	824.74	824.60	828.18	828.84	823.14	823.00
R39	R38	0.12	0.64	0.08	2.44	23.70	3.59	8.78	13.38	24	25	0.35	0.15	0.17	0.17	4.3	0.1	823.41	823.37	828.84	828.78	821.85	821.76
R38	R37	0.15	0.73	0.11	3.62	23.80	3.59	13.00	21.09	36	57	0.10	0.04	0.10	0.10	3.0	0.3	823.37	823.31	828.78	828.67	820.96	820.90
R37	R36	0.00	0.00	0.00	4.03	24.10	3.56	14.36	21.09	36	86	0.10	0.05	0.10	0.10	3.0	0.5	823.31	823.22	828.67	828.66	820.90	820.82
R36	R35	0.03	0.25	0.01	4.04	24.60	3.53	14.36	21.09	36	68	0.10	0.05	0.10	0.10	3.0	0.4	823.22	823.16	828.66	827.40	820.82	820.75
R35	R34	0.11	0.47	0.05	4.09	25.00	3.50	14.31	21.09	36	110	0.10	0.05	0.10	0.10	3.0	0.6	823.16	823.04	827.40	826.68	820.75	820.64
R34	R333	0.16	0.45	0.07	4.16	25.60	3.46	14.39	21.09	36	55	0.10	0.05	0.10	0.10	3.0	0.3	823.04	822.99	826.68	826.68	820.64	820.58
R333	R33	0.08	0.45	0.04	4.20	25.90	3.44	14.43	21.09	36	55	0.10	0.05	0.10	0.10	3.0	0.3	822.99	822.93	826.68	826.75	820.58	820.53
R33	R32	0.08	0.45	0.04	4.23	26.20	3.42	14.47	21.09	36	55	0.10	0.05	0.10	0.10	3.0	0.3	822.93	822.88	826.75	826.86	820.53	820.47
R32	R31	0.04	0.47	0.02	5.60	26.50	3.40	19.01	21.09	36	44	0.10	0.08	0.10	0.10	3.0	0.2	822.88	822.83	826.86	825.98	820.47	820.43
R31	R30	0.21	0.48	0.10	5.70	26.70	3.38	19.28	21.09	36	110	0.10	0.08	0.10	0.10	3.0	0.6	822.83	822.72	825.98	828.36	820.43	820.32
R30	R3	0.14	0.49	0.07	5.76	27.30	3.35	19.29	21.09	36	117	0.10	0.08	0.10	0.10	3.0	0.7	822.72	822.60	828.36	829.40	820.32	820.20
R27	R26	0.13	0.50	0.07	0.07	20.00	3.89	0.25	2.36	12	55	0.44	0.01	0.44	0.44	3.0	0.3	824.43	824.19	827.66	827.49	823.63	823.39
R26	R23	0.27	0.34	0.09	0.16	20.30	3.86	0.61	2.36	12	89	0.44	0.03	0.44	0.44	3.0	0.5	824.09	823.70	827.49	828.36	823.29	822.90
R25	R24	0.18	0.43	0.08	0.08	20.00	3.89	0.30	3.98	12	110	1.25	0.01	0.44	0.44	5.1	0.4	827.97	826.60	831.25	829.85	827.17	825.80
R24	R23	0.26	0.41	0.11	0.18	20.40	3.85	0.70	6.17	12	110	3.00	0.04	0.44	0.44	7.9	0.2	826.60	823.46	829.85	828.36	825.80	822.50
R23	R22	0.18	0.39	0.07	0.47	20.60	3.84	1.81	5.25	18	110	0.25	0.03	0.25	0.25	3.0	0.6	823.46	823.18	828.36	826.16	822.00	821.72
R22	R211	0.34	0.42	0.14	0.61	21.20	3.79	2.32	9.33	24	55	0.17	0.01	0.17	0.17	3.0	0.3	823.18	823.09	826.16	826.00	821.22	821.13
R211	R21	0.18	0.39	0.07	0.68	21.50	3.76	2.56	9.33	24	60	0.17	0.01	0.17	0.17	3.0	0.3	823.09	822.98	826.00	825.64	821.13	821.03
R21	R20	0.39	0.42	0.16	0.84	21.80	3.74	3.15	21.09	36	115	0.10	0.00	0.10	0.10	3.0	0.6	822.98	822.87	825.64	827.64	820.58	820.46
R20	R6	0.16	0.45	0.07	0.92	22.40	3.69	3.38	21.09	36	106	0.10	0.00	0.10	0.10	3.0	0.6	822.87	822.76	827.64	826.57	820.46	820.36
R18	R9	1.00	0.55	0.55	0.55	20.00	3.89	2.15	3.65	15	38	0.32	0.11	0.32	0.32	3.0	0.2	823.36	823.24	826.39	826.61	822.22	822.10
R17	R16	0.34	0.37	0.12	0.12	20.00	3.89	0.48	2.36	12	150	0.44	0.02	0.44	0.44	3.0	0.8	828.33	827.67	831.59	833.20	827.53	826.87
R16	R15	0.24	0.38	0.09	0.22	20.80	3.82	0.83	2.36	12	150	0.44	0.05	0.44	0.44	3.0	0.8	827.67	827.01	833.20	834.70	826.87	826.21
R15	R14	0.19	0.47	0.09	0.31	21.60	3.76	1.15	2.36	12	150	0.44	0.10	0.44	0.44	3.0	0.8	827.01	826.35	834.70	834.70	826.21	825.55
R14	R13	0.25	0.38	0.09	0.40	22.40	3.69	1.48	2.36	12	150	0.44	0.17	0.44	0.44	3.0	0.8	826.35	825.69	834.70	835.13	825.55	824.89
R13	R12	0.15	0.36	0.05	0.45	23.20	3.63	1.64	2.36	12	150	0.44	0.21	0.44	0.44	3.0	0.8	825.69	825.03	835.13	832.13	824.89	824.23
R12	R11	0.25	0.38	0.09	0.55	24.00	3.57	1.96	2.36	12	150	0.44	0.30	0.44	0.44	3.0	0.8	825.03	824.37	832.13	829.13	824.23	823.57
R11	R10	0.28	0.39	0.11	0.66	24.80	3.51	2.32	2.36	12	150	0.44	0.42	0.44	0.44	3.0	0.8	824.37	823.71	829.13	827.22	823.57	822.91
R10	R9	0.26	0.38	0.10	0.76	25.60	3.46	2.62	3.65	15	81	0.32	0.16	0.32	0.32	3.0	0.5	823.71	823.45	827.22	826.61	822.71	822.45
R9	R8	0.16	0.41	0.07	1.37	26.10	3.42	4.71	5.25	18	112	0.25	0.20	0.25	0.25	3.0	0.6	823.24	822.95	826.61	827.15	821.90	821.62
R8	R7	1.23	0.69	0.84	2.22	26.70	3.38	7.50	11.08	24	25	0.24	0.11	0.17	0.17	3.5	0.1	822.95	822.91	827.15	827.21	821.37	821.31
R7	R6	1.23	0.72	0.89	3.11	26.80	3.38	10.49	21.09	36	122	0.10	0.02	0.10	0.10	3.0	0.7	822.88	822.76	827.21	826.57	821.06	820.94
R6	R3	0.57	0.32	0.18	4.21	27.50	3.33	14.02	21.09	36	254	0.10	0.04	0.10	0.10	3.0	1.4	822.76	822.50	826.57	829.40	820.36	820.10
R3	R2	0.11	0.39	0.04	10.01	28.90	3.25	32.51	38.00	48	66	0.07	0.05	0.07	0.07	3.0	0.4	821.07	821.03	829.40	830.01	820.10	820.06
R2	R1	0.00	0.00	0.00	10.01	29.30	3.22	32.51	38.00	48	83	0.07	0.05	0.07	0.07	3.0	0.5	821.03	820.97	830.01	824.75	820.06	820.00

ELLIPTICAL 29"x45" (EQUIVALENT 36" ROUND) TO BE INSTALLED TO REDUCE COVER ON WATER MAIN (SEE SHEET 45)

TEXTILE AND STATE ROAD FRONTAGE

I = B/(T+D) ^E   B = 175.0   D = 25.0   E = 1
C = varies
T = 20 (min.)

FROM MH INPUT	TO MH	INCRE-MENT ACRES (A)	C	EQUIV. AREA 100% ACRES CA	TOTAL AREA 100% ACRES SUM CA	T TIME (MIN.)	I (IN PER HOUR)	Q=CIA C.F.S. FLOW	CAPAC-ITY OF SEWER (C.F.S.)	DIAM. OF PIPE (IN.)	LENGTH OF LINE (FT.)	SLOPE OF PIPE (%)	MIN HG BASED ON "Q" (%)	HG FOR 3.0 FPS GIVEN "D" (%)	ACTUAL HG (%)	VEL. FLOW FULL (FT./SEC.)	TIME OF FLOW (MIN.)	H.G.L. ELEV. UPPER END	H.G.L. ELEV. LOWER END	GROUND ELEV. UPPER END	GROUND ELEV. LOWER END	INVERT ELEV. UPPER END	INVERT ELEV. LOWER END
FRONTAGE																							
R303	R301	1.27	0.66	0.84	0.84	20.00	3.89	3.27	3.65	15	50	0.32	0.26	0.32	0.32	3.0	0.3	827.37	827.21	828.70	829.54	825.87	825.71
R302	R301	0.36	0.65	0.23	0.23	20.00	3.89	0.91	2.36	12	109	0.44	0.07	0.44	0.44	3.0	0.6	827.69	827.21	828.75	829.54	826.19	825.71
R301	EXR1	0.00	0.00	0.00	1.07	20.60	3.84	4.12	5.25	18	20	0.25	0.15	0.25	0.25	3.0	0.1	827.21	827.16	829.54	826.73	825.71	825.66
R306	R305	0.00	0.00	0.00	0.00	20.00	3.89	0.00	6.55	12	50	3.38	0.00	0.44	0.44	8.3	0.1	843.25	841.64	843.96	846.16	842.45	840.76
R305	R304	0.00	0.00	0.00	0.00	20.10	3.88	0.00	2.52	12	186	0.50	0.00	0.44	0.44	3.2	1.0	841.64	840.83	846.16	841.08	840.76	839.83
R309	R308	0.00	0.00	0.00	0.00	20.00	3.89	0.00	2.36	12	29	0.44	0.00	0.44	0.44	3.0	0.2	844.71	844.58	846.19	846.19	843.71	843.58
R308	R307	0.00	0.00	0.00	0.00	20.20	3.87	0.00	2.36	12	18	0.44	0.00	0.44	0.44	3.0	0.1	844.58	844.50	846.19	844.75	843.58	843.50

EAST BASIN

I = B/(T+D) ^E   B = 175.0   D = 25.0   E = 1
C = varies
T = 20 (min.)

FROM MH INPUT	TO MH	INCRE-MENT ACRES (A)	C	EQUIV. AREA 100% ACRES CA	TOTAL AREA 100% ACRES SUM CA	T TIME (MIN.)	I (IN PER HOUR)	Q=CIA C.F.S. FLOW	CAPAC-ITY OF SEWER (C.F.S.)	DIAM. OF PIPE (IN.)	LENGTH OF LINE (FT.)	SLOPE OF PIPE (%)	MIN HG BASED ON "Q" (%)	HG FOR 3.0 FPS GIVEN "D" (%)	ACTUAL HG (%)	VEL. FLOW FULL (FT./SEC.)	TIME OF FLOW (MIN.)	H.G.L. ELEV. UPPER END	H.G.L. ELEV. LOWER END	GROUND ELEV. UPPER END	GROUND ELEV. LOWER END	INVERT ELEV. UPPER END	INVERT ELEV. LOWER END
EAST STORM BASIN NETWORK 1																							
R195	R194	0.39	0.40	0.16	0.16	20.00	3.89	0.61	3.56	12	200	1.00	0.03	0.44	0.44	4.5	0.7	838.24	836.24	841.70	839.54	837.44	835.44
R194	R193	0.47	0.41	0.20	0.35	20.70	3.83	1.34	3.56	12	200	1.00	0.14	0.44	0.44	4.5	0.7	836.14	834.14	839.54	837.54	835.34	833.34
R193	R192	0.45	0.42	0.19	0.54	21.40	3.77	2.04	5.91	12	220	2.75	0.33	0.44	0.44	7.5	0.5	834.04	827.99	837.54	831.46	833.24	827.19
R192	R191	0.39	0.45	0.18	0.72	21.90	3.73	2.68	5.04	12	201	2.00	0.56	0.44	0.56	6.4	0.5	827.89	823.87	831.46	829.45	827.09	823.07
R191	R190	0.34	0.47	0.16	0.88	22.40	3.69	3.25	6.93	15	88	1.15	0.25	0.32	0.32	5.6	0.3	822.95	822.66	829.45	824.92	822.87	821.86
EAST STORM BASIN NETWORK 2																							
R197	R196	0.44	0.77	0.34	0.34	20.00	3.89	1.31	2.36	12	25	0.44	0.13	0.44	0.44	3.0	0.1	838.67	838.56	841.91	841.97	837.87	837.76
R196	R163	0.24	0.65	0.15	0.49	20.10	3.88	1.90	6.17	12	18	3.00	0.28	0.44	0.44	7.9	0.0	837.79	837.71	841.97	840.92	837.45	836.91
R189	R188	0.35	0.59	0.20	0.20	20.00	3.89	0.80	2.36	12	25	0.44	0.05	0.44	0.44	3.0	0.1	833.50	833.39	836.78	836.72	832.70	832.59
R188	R153	0.13	0.58	0.07	0.28	20.10	3.88	1.08	2.36	12	15	0.44	0.09	0.44	0.44	3.0	0.1	833.29	833.22	836.72	837.31	832.49	832.42
R199	R198	0.17	0.75	0.12	0.12	20.00	3.89	0.48	2.36	12	25	0.44	0.02	0.44	0.44	3.0	0.1	836.52	836.41	839.95	839.89	835.72	835.61
R198	R183A	0.11	0.79	0.08	0.21	20.10	3.88	0.80	2.36	12	26	0.44	0.05	0.44	0.44	3.0	0.1	836.31	836.19	839.89	840.89	835.51	835.39
R187	R186	0.27	0.60	0.16	0.16	20.00	3.89	0.63	3.56	12	25	1.00	0.03	0.44	0.44	4.5	0.1	837.44	837.33	841.03	841.00	836.78	836.53
R186	R185	0.12	0.63	0.07	0.24	20.10	3.88	0.91	5.04	12	54	2.00	0.07	0.44	0.44	6.4	0.1	837.23	836.15	841.00	839.68	836.43	835.35
R185	R184	0.52	0.75	0.39	0.63	20.20	3.87	2.43	2.64	12	25	0.55	0.47	0.44	0.47	3.4	0.1	836.03	835.91	839.68	839.74	835.25	835.11
R184	R183A	0.35	0.57	0.20	0.83	20.30	3.86	3.20	5.59	12	39	2.46	0.81	0.44	0.81	7.1	0.1	835.16	834.84	839.74	840.89	835.01	834.04
R183A	R183	0.00	0.00	0.00	1.04	20.40	3.85	3.99	4.06	12	127	1.30	1.25	0.44	1.25	5.2	0.4	833.74	832.15	840.89	839.97	832.99	831.35
R183	R182	0.31	0.75	0.23	1.27	20.80	3.82	4.83	6.17	12	25	3.00	1.84	0.44	1.84	7.9	0.1	831.76	831.30	839.97	839.91	831.25	830.50
R182	R181	0.48	0.72	0.35	1.61	20.90	3.81	6.14	6.17	12	17	3.00	2.97	0.44	2.97	7.9	0.0	831.19	830.68	839.91	840.56	830.40	829.88
R181	R154	0.00	0.00	0.00	1.61	20.90	3.81	6.14	6.46	15	109	1.00	0.90	0.32	0.90	5.3	0.3	830.57	829.59	840.56	838.15	829.68	828.59
R180	R179	0.90	0.49	0.44	0.44	20.00	3.89	1.71	2.36	12	25	0.44	0.23	0.44	0.44	3.0	0.1	830.63	830.52	833.86	833.92	829.83	829.72
R179	176A	0.64	0.39	0.25	0.69	20.10	3.88	2.66	2.67	12	40	0.56	0.56	0.44	0.56	3.4	0.2	830.42	830.19	833.92	834.67	829.62	829.39
176A	R176	0.00	0.00	0.00	0.69	20.30	3.86	2.66	2.67	12	78	0.56	0.56	0.44	0.56	3.4	0.4	830.09	829.66	834.67	833.13	829.29	828.86
R178	R177	0.95	0.76	0.72	0.72	20.00	3.89	2.79	2.98	12	25	0.70	0.61	0.44	0.61	3.8	0.1	832.57	832.41	835.82	835.88	831.79	831.61
R177	R176	0.72	0.76	0.55	1.27	20.10	3.88	4.91	6.67	12	76	3.50	1.90	0.44	1.90	8.5	0.1	832.31	829.66	835.88	833.13	831.51	828.86
R176	R156	0.16	0.30	0.05	2.00	20.20	3.87	7.75	9.14	15	110	2.00	1.44	0.32	1.44	7.4	0.2	829.04	827.45	833.13	830.93	828.66	826.45
R175	R174	0.45	0.47	0.21	0.21	20.00	3.89	0.81	3.36	12	100	0.89	0.05	0.44	0.44	4.3	0.4	834.61	834.18	838.29	837.40	834.27	833.38
R174	R159	0.41	0.53	0.22	0.43	20.40	3.85	1.65	2.36	12	66	0.44	0.21	0.44	0.44	3.0	0.4	834.07	833.78	837.40	838.73	833.28	832.98
R173	R172	0.05	0.80	0.04	0.04	20.00	3.89	0.17	2.36	12	25	0.44	0.00	0.44	0.44	3.0	0.1	841.43	841.32	844.63	844.69	840.63	840.52
R172	R171	0.18	0.40	0.07	0.12	20.10	3.88	0.45	2.36	12	18	0.44	0.02	0.44	0.44	3.0	0.1	841.32	841.24	844.69	845.91	840.52	840.44
R171	R170	0.00	0.00	0.00	0.12	20.20	3.87	0.45	2.36	12	109	0.44	0.02	0.44	0.44	3.0	0.6	841.24	840.76	845.91	845.47	840.44	839.96
R170	R164	0.35	0.93	0.32	0.44	20.80	3.82	1.67	7.56	12	60	4.50	0.22	0.44	0.44	9.6	0.1	838.56	835.86	845.47	839.06	837.76	835.06
R168	R167	0.22	0.93	0.21	0.21	20.00	3.89	0.80	3.38	12	66	0.90	0.05	0.44	0.44	4.3	0.3	843.40	843.11	846.90	846.91	842.91	842.31
R167	R166	0.31	0.69	0.22	0.42	20.30	3.86	1.63	2.36	12	125	0.44	0.21	0.44	0.44	3.0	0.7	839.12	838.57	846.91	844.29	838.32	837.77
R166	165A	0.22	0.90	0.20	0.62	21.00	3.80	2.36	5.93	12	68	2.78	0.44	0.44	0.44	7.6	0.1	838.47	836.59	844.29	844.97	837.67	835.79
165A	R165	0.00	0.00	0.00	0.62	21.10	3.80	2.36	5.93	12	105	2.78	0.44	0.44	0.44	7.6	0.2	836.49	833.56	844.97	838.04	835.69	832.76
R165	R164	0.63	0.50	0.32	0.93	21.30	3.78	3.53	5.46	18	100	0.27	0.11	0.25	0.25	3.1	0.5	833.55	833.30	838.04	839.06	832.36	832.09
R164	R163	0.13	0.40	0.05	1.43	21.80	3.74	5.33	9.33	24	107	0.17	0.06	0.17	0.17	3.0	0.6	833.30	833.11	839.06	840.92	831.69	831.51
R163	R162	0.00	0.00	0.00	1.91	22.40	3.69	7.07	9.33	24	20	0.17	0.10	0.17	0.17	3.0	0.1	833.11	833.08	840.92	839.20	831.51	831.48
R162	R161	0.60	0.75	0.45	2.37	22.50	3.68	8.72	12.39	24	25	0.30	0.15	0.17	0.17	3.9	0.1	833.05	833.00	839.20	839.26	831.48	831.40
R161	R160	0.57	0.76	0.43	2.79	22.60	3.68	10.27	12.39	24	87	0.30	0.21	0.17	0.21	3.9	0.4	831.42	831.24	839.26	838.24	829.90	829.64
R160	R159	0.12	0.25	0.03	2.82	23.00	3.65	10.30	12.39	24	103	0.30	0.21	0.17	0.21	3.9	0.4	831.15	830.93	838.24	838.73	829.64	829.33
R159	R158	0.16	0.37	0.06	3.31	23.40	3.62	11.97	13.94	24	97	0.38	0.28	0.17	0.28	4.4	0.4	830.84	830.57	838.73	837.76	829.33	828.97
R158	R157	0.25	0.40	0.10	3.41	23.80	3.59	12.23	13.94	24	200	0.38	0.29	0.17	0.29	4.4	0.7	830.39	829.81	837.76	834.76	828.97	828.21
R157	R156	0.60	0.54	0.32	3.73	24.50	3.54	13.20	27.71	24	150	1.50	0.34	0.17	0.34	8.8	0.3	828.31	826.05	834.76	830.93	826.71	824.45
R156	R155	0.63	0.46	0.29	6.03	24.80	3.51	21.19	23.20	30	100	0.32	0.27	0.13	0.27	4.7	0.4	826.00	825.73	830.93	833.14	824.05	823.73
R155	R154	0.38	0.46	0.17	6.20	25.20	3.49	21.62	22.84	30	111	0.31	0.28	0.13	0.28	4.7	0.4	825.70	825.39	833.14	838.15	823.73	823.39
R154	R153	0.00	0.00	0.00	7.81	25.60	3.46	27.02	29.07	36	87	0.19	0.16	0.10	0.16	4.1	0.4	825.37	825.22	838.15	837.31	822.99	822.82
R153	R104	0.00	0.00	0.00	8.09	26.00	3.43	27.76	29.07	36	166	0.19	0.17	0.10	0.17	4.1	0.7	825.20	824.91	837.31	833.81	822.82	822.51
R138	R137	0.18	0.43	0.08	0.08	20.00	3.89	0.30	5.28	12	110	2.20	0.01	0.44	0.44	6.7	0.3	832.68	830.26	835.90	833.48	831.88	829.46
R137	R136	0.37	0.42	0.16	0.24	20.30	3.86	0.91	5.16	12	55	2.10	0.07	0.44	0.44	6.6	0.1	830.16	829.00	833.48	832.28	829.36	828.20
R136	R135	0.34	0.44	0.15	0.39	20.40	3.85	1.49	2.36	12	90	0.44	0.18	0.44	0.44	3.0	0.5	828.90	828.50	832.28	836.04	828.10	827.70
R135	R134	0.20	0.63	0.13	0.51	20.90	3.81	1.96	2.36	12	66	0.44	0.30	0.44	0.44	3.0	0.4	828.40	828.11	836.04	836.03	827.60	827.31
R134	R133	0.20	0.64	0.13	0.64	21.30	3.78	2.43	6.37	12	88	3.20	0.46	0.44	0.46	8.1	0.2	828.01	825.20	836.03	828.50	827.21	824.40
R133	R132	0.46	0.43	0.20	0.84	21.50	3.76	3.15	6.21	18	116	0.35	0.09	0.25	0.25	3.5	0.5	825.15	824.85	828.50	829.08	824.00	823.59
R132	R131	0.19	0.42	0.08	0.92	22.00	3.72	3.41	5.25	18	116	0.25	0.11	0.25	0.25	3.0	0.7	824.85	824.56	829.08	827.33	823.36	823.07
R131	R130	0.41	0.41	0.17	1.08	22.70	3.67	3.98	5.25	18	58	0.25	0.14	0.25	0.25	3.0	0.3	824.56	824.41	827.33	828.24	823.07	822.92
R130	R105	0.12	0.38	0.05	1.13	23.00	3.65	4.12	5.25	18	53	0.25	0.15	0.25	0.25	3.0	0.3	824.41	824.27	828.24	827.18	822.92	822.79
R142	R141	0.39	0.72	0.28	0.28	20.00	3.89	1.09	2.36	12	25	0.44	0.09	0.44	0.44	3.0	0.1	826.01	825.90	829.22	829.16	825.21	825.10
R141	R109	0.33	0.75	0.25	0.53	20.10	3.88	2.06	3.56	12	110	1.00	0.33	0.44	0.44	4.5	0.4	825.29	824.81	829.16	828.78	825.00	823.91
R128	R127	0.11	0.80	0.09	0.09	20.00	3.89	0.34	2.36	12	66	0.44	0.01	0.44	0.44	3.0	0.4	830.01	829.72	833.24	833.24	829.21	828.92
R127	R126	0.15	0.74	0.11	0.19	20.40	3.85	0.75	6.37	12	41	3.20	0.04	0.44	0.44	8.1	0.1	829.62	828.31	833.24	831.59	828.82	827.51
R126	R125	0.50	0.74	0.37	0.57	20.50	3.85	2.18	2.64	12	25	0.55	0.37	0.44	0.44	3.4	0.1	828.18	828.07	831.59	831.53	827.41	827.27
R125	R124	0.58	0.67	0.39	0.96	20.60	3.84	3.67	5.27	12	42	2.19	1.06	0.44	1.06	6.7	0.1	827.50	827.06	831.53	831.34	827.17	826.26
R124	R112	0.01	0.25	0.00	0.96	20.70	3.83	3.68	5.27	12	84	2.19	1.06	0.44	1.06	6.7	0.2	826.96	825.13	831.34	829.80	826.16	824.32
R144	R140	0.14	0.71	0.10	0.10	20.00	3.89	0.40	2.36	12	61	0.44	0.01	0.44	0.44	3.0	0.3	835.88	835.61	839.13	838.88	835.09	834.81
R140	R117	0.45	0.58	0.26	0.36	20.30	3.86	1.41	3.32	12	144	0.87	0.16	0.44	0.44	4.2	0.6	834.89	834.27	838.88	837.60	834.71	833.47
R143	R119	0.36	0.79	0.28	0.28	20.00	3.89	1.09	6.07	12	61	2.90	0.09	0.44	0.44	7.7	0.1	839.96	838.18	843.69	841.89	839.16	837.38
R200	R119	0.42	0.94	0.40	0.40	20.00	3.89	1.55	4.91	12	66	1.90	0.19	0.44	0.44	6.3	0.2	839.43	838.18	843.14	841.89	838.63	837.38
R123	R122	0.41	0.86	0.35	0.35	20.00	3.89	1.37	2.36	12	82	0.44	0.15	0.44	0.44	3.0	0.5	838.97	838.61	842.20	843.69	838.17	837.81
R122	R121	0.32	0.78	0.25	0.60	20.50	3.85	2.31	3.98	12	69	1.25	0.42	0.44	0.44	5.1	0.2	837.95	837.65	843.69	843.21	837.71	836.85
R121	R116	0.25	0.82	0.21	0.81	20.70	3.83	3.09	7.56	12	81	4.50	0.75	0.44	0.75	9.6	0.1	837.55	833.90	843.21	838.16	836.75	833.10
R215	R120	0.19	0.72	0.14	0.14	20.00	3.89	0.53	2.36	12	58	0.44	0.02	0.44	0.44	3.0	0.3	838.42	838.16	841.83	841.89	837.62	837.36
R120	R119	0.21	0.33	0.07	0.21	20.00	3.89	0.80	2.36	12	110	0.44	0.05	0.44	0.44	3.0	0.6	838.06	837.58	841.89	841.89	837.26	836.78
R119	R118	0.13	0.37	0.05	0.94	20.60	3.84	3.59	5.63	12	110	2.50	1.02	0.44	1.02	7.2	0.3	837.48	834.73	841.89	837.96	836.68	833.93
R118	R117	0.52	0.34	0.18	1.12	20.90	3.81	4.25	4.29	12	187	1.45	1.42	0.44	1.42	5.5	0.6	834.58	831.92	837.96	837.60	833.83	831.12
R117	R116	0.25	0.32	0.08	1.56	21.50	3.76	5.86	5.91	12	28	2.75	2.71	0.44	2.71	7.5	0.1	831.84	831.09	837.60	838.16	831.02	830.25
R116	R115	0.18	0.25	0.04	2.41	21.60	3.76	9.04	9.14	15	150	2.00	1.96	0.32	1.96	7.4	0.3	831.09	828.15	838.16	833.91	830.15	827.15
R115	R114	0.14	0.37	0.05	2.46	21.90	3.73	9.17	9.23	15	75	2.04	2.02	0.32	2.02	7.5	0.2	828.03	826.52	833.91	832.04	827.05	825.52
R114	R113	0.11	0.39	0.04	2.50	22.10	3.72	9.30	9.40	18	150	0.80	0.78	0.25	0.78	5.3	0.5	826.49	825.32	832.04	828.49	825.32	824.12
R113	R112	0.34	0.39	0.13	2.64	22.60	3.68	9.69	9.86	24	102	0.19	0.18	0.17	0.18	3.1	0.5	825.32	825.13	828.49	829.80	823.72	823.52
R112	R111	0.17	0.61	0.10	3.70	23.10	3.64	13.45	21.09	36	67	0.10	0.04	0.10	0.10	3.0	0.4	825.13	825.06	829.80	829.78	822.72	822.66
R111	R110	0.18	0.58	0.10	3.80	23.50	3.61	13.72	21.09	36	102	0.10	0.04	0.10	0.10	3.0	0.6	825.06	824.96	829.78	827.69	822.66	822.56
R110	R109	0.27	0.37	0.10	3.90	24.10	3.56	13.91	21.09	36	150	0.10	0.04	0.10	0.10	3.0	0.8	824.96	824.81	827.69	828.78	822.56	822.41
R109	R108	0.09	0.44	0.04	4.47	24.90	3.51	15.68	21.09	36	75	0.10	0.06	0.10	0.10	3.0	0.4	824.81	824.73	828.78	827.33	822.41	822.33
R108	R107	0.20	0.41	0.08	4.55	25.30	3.48	15.84	21.09	36	75	0.10	0.06	0.10	0.10	3.0	0.4	824.73	824.66	827.33	827.30	822.33	822.26
R107	R106	0.10	0.41	0.04	4.59	25.70	3.45	15.86	21.09	36	29	0.10	0.06	0.10	0.10	3.0	0.2	824.66	824.63	827.30	827.32	822.26	822.23
R106	R105	0.06	0.25	0.02	4.61	25.90	3.44	15.86	21.09	36	256	0.10	0.06	0.10	0.10	3.0	1.4	824.53	824.27	827.32	827.18	822.13	821.87
R105	R104	0.15	0.32	0.05	5.79	27.30	3.35	19.37	21.09	36	163	0.10	0.08	0.10	0.10	3.0	0.9	824.27	824.11	827.18	833.81	821.87	821.71
R104	R103	0.00	0.00	0.00	13.88	28.20	3.29	45.65	47.64	48	111	0.11	0.10	0.07	0.10	3.8	0.5	823.31	823.20	833.81	831.12	821.71	821.59
R103	R102	0.39	0.50	0.19	14.07	28.70	3.26	45.86	47.64	48	200	0.11	0.10	0.07	0.10	3.8	0.9	823.20	823.00	831.12	831.13	821.59	821.37
R102	R101	0.22	0.52	0.11	14.18	29.60	3.21	45.86	47.64	48	232	0.11	0.10	0.07	0.10	3.8	1.0	823.00	822.76	831.13	828.10	821.37	821.11
R101	R100	0.15	0.25	0.04	14.22	30.60	3.15	45.86	47.64	48	101	0.11	0.10	0.07	0.10	3.8	0.4	822.76	822.66	828.10		821.11	821.00

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN
STORMWATER CONVEYANCE CALCULATIONS

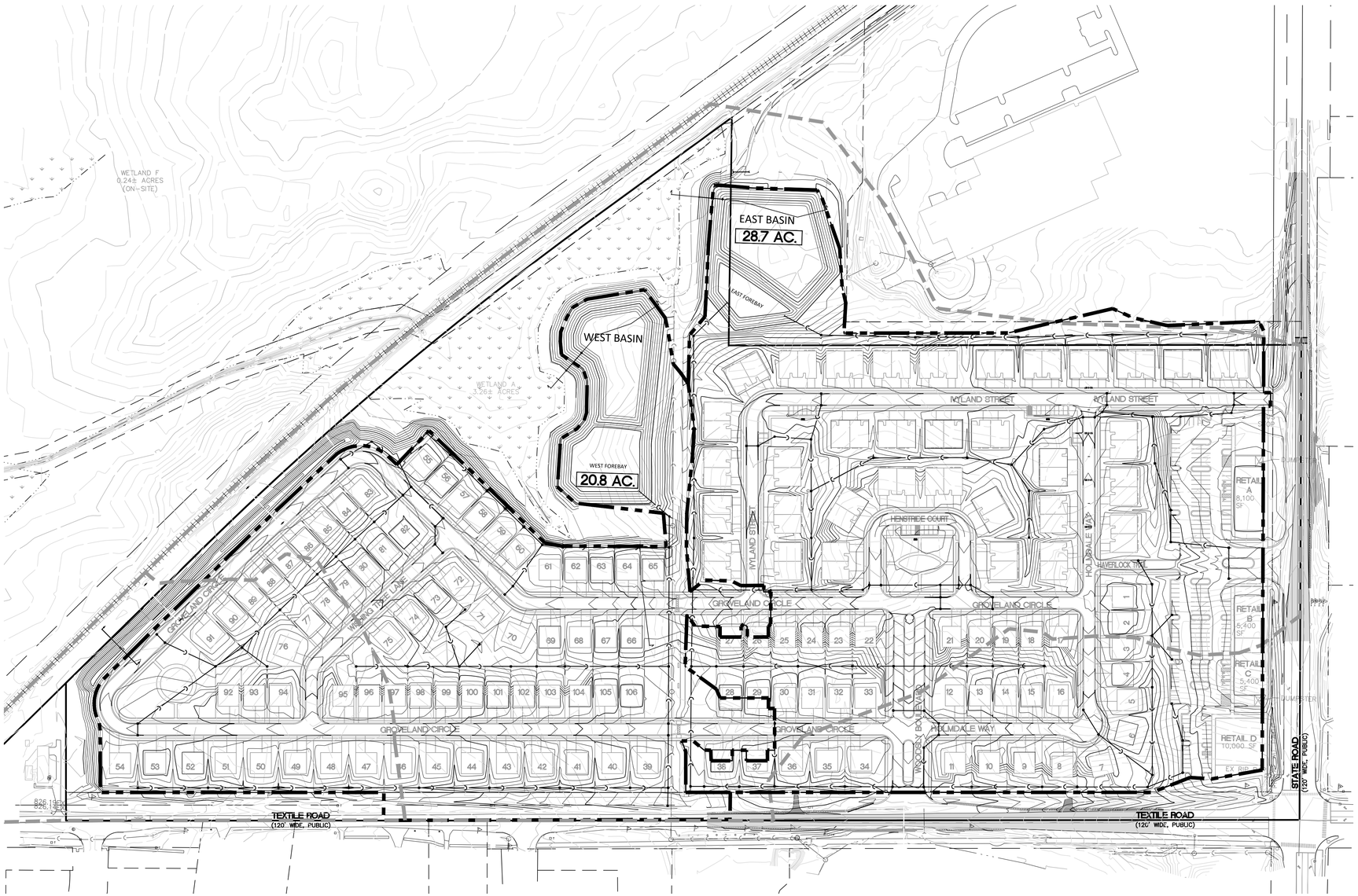
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0
NO SCALE

DR. SK | CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 67



LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED BASIN DRAINAGE AREA
- EXISTING DRAINAGE AREA
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET

STORM DRAINAGE NARRATIVE

EXISTING CONDITIONS

The site is site is predominantly open farm fields with areas of pocket wetlands. The terrain generally falls from the east and south towards a wetland complex and the Pittsfield Junction Drain that runs along the existing railroad to the northwest of the subject site.

The storm water runoff from the site drains via overland flow to the Pittsfield Junction Drain which flows east to west along the northwestern side of the site. This drain is the immediate receiving body for the site runoff. This drain eventually adjoins the Wood Outlet Drain downstream of the site to the southwest.

Per recent discussions with the WCWRC, it is understood that historically the culvert outlet under the railroad within the Pittsfield Junction Dain was impaired or buried, which caused ponding on the subject property. The WCWRC has stated that they have uncovered and cleared the channel downstream of the culvert, but believe the culvert is still blocked. As such, the property owner worked with the railroad owner and contractors to facilitate the cleanout of the existing culvert under the railroad within the Pittsfield Junction Drain. On January 8, 2016 representatives from the WCWRC were in the field to witness the cleanout of the culvert and confirm its functionality.

It was also discussed that the enclosed "Sweetwater" storm water outlet pipe that runs from the south, bisects the property within an existing utility corridor, and outlets to the existing wetland complex on site, cannot have any proposed connections to it. There are no proposed connections to this enclosed storm sewer.

Refer to the drain map and the existing conditions plan for additional details.

PROPOSED STORM DRANAGE SYSTEM DESIGN

In conjunction with the development of the site, the storm water management facility improvements are to comply with the current Rules of the Washtenaw County Water Resource Commissioner (WCWRC). The proposed storm water runoff will be collected and conveyed via storm sewer to one of two detention basins proposed on the site. These basins will be sized using the WCWRC method to treat, infiltrate the required storm water in the bottom of the ponds, and detain for a 100-year storm event. A flow restrictor will be provided via a perforated riser outlet structures in order to regulate the rate of discharge at or below the allowable bank full and 100-year rates. Stone wall fore-bays will be provided within the basins to promote settling of suspended solids and sediment for the more frequent rain events.

The outlets from the basins will be discharging at restricted rates to the existing wetland complex directly adjacent to and associated with the drain. Refer to the plans for additional details.

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

OVERALL DRAINAGE AREA PLAN

DATE
SEPTEMBER 13, 2016

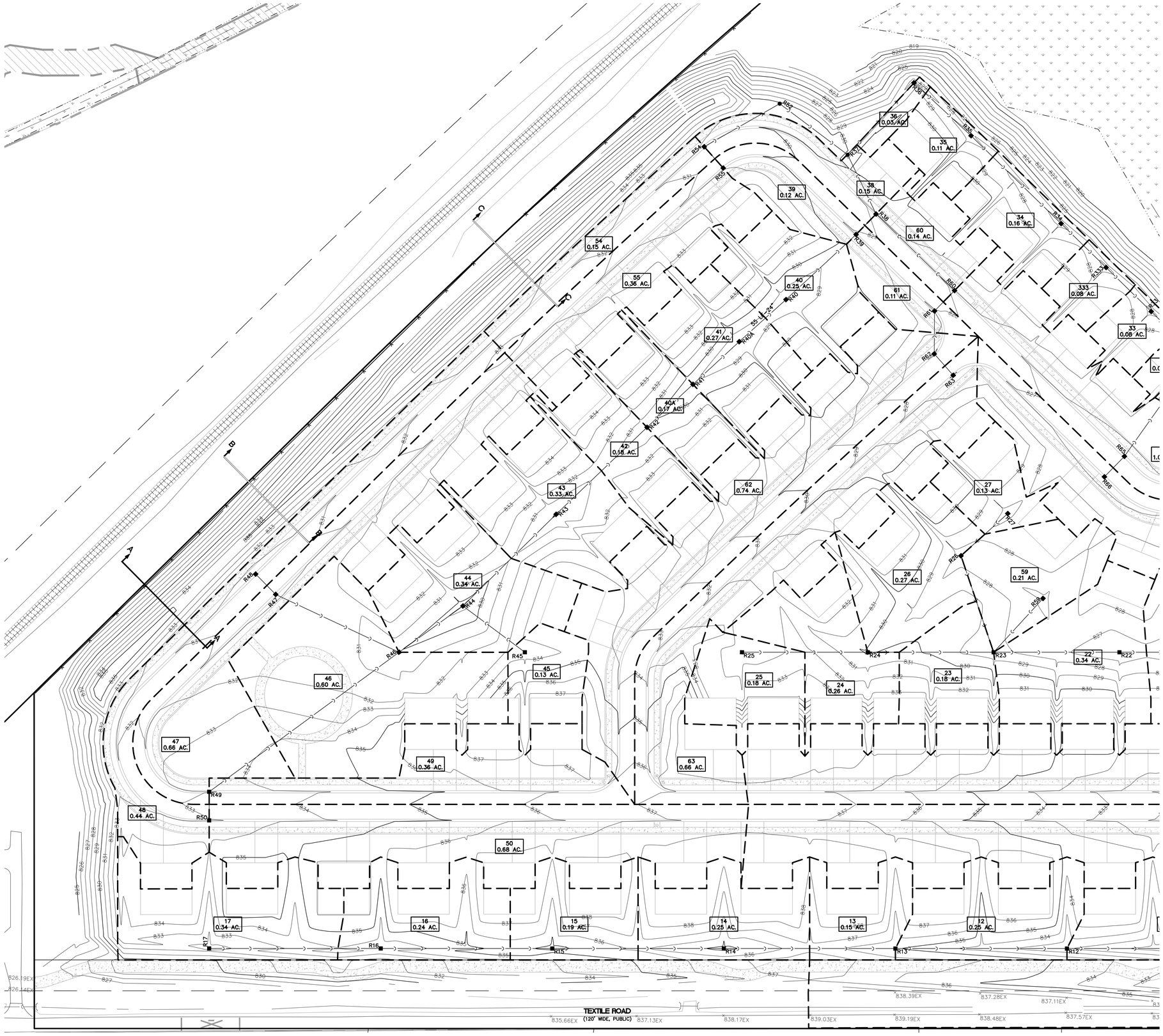
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

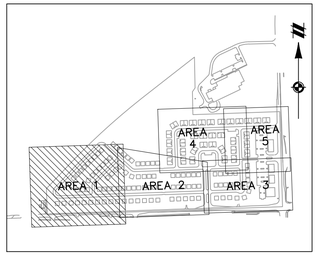
REVISIONS

SCALE 0 60 120
SCALE: 1" = 120'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 68	

J:\13001886\DWG\PLAN SET\FINAL SITE PLAN\13001886F-L1.5-DRAINAGE.1/16/2016 3:00 PM STEPHEN ROSSEL





KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
S	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED CATCH BASIN DRAINAGE AREA
	EXISTING WETLAND
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 W. ANN ARBOR TRAIL
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

DRAINAGE AREA PLAN – AREA 1

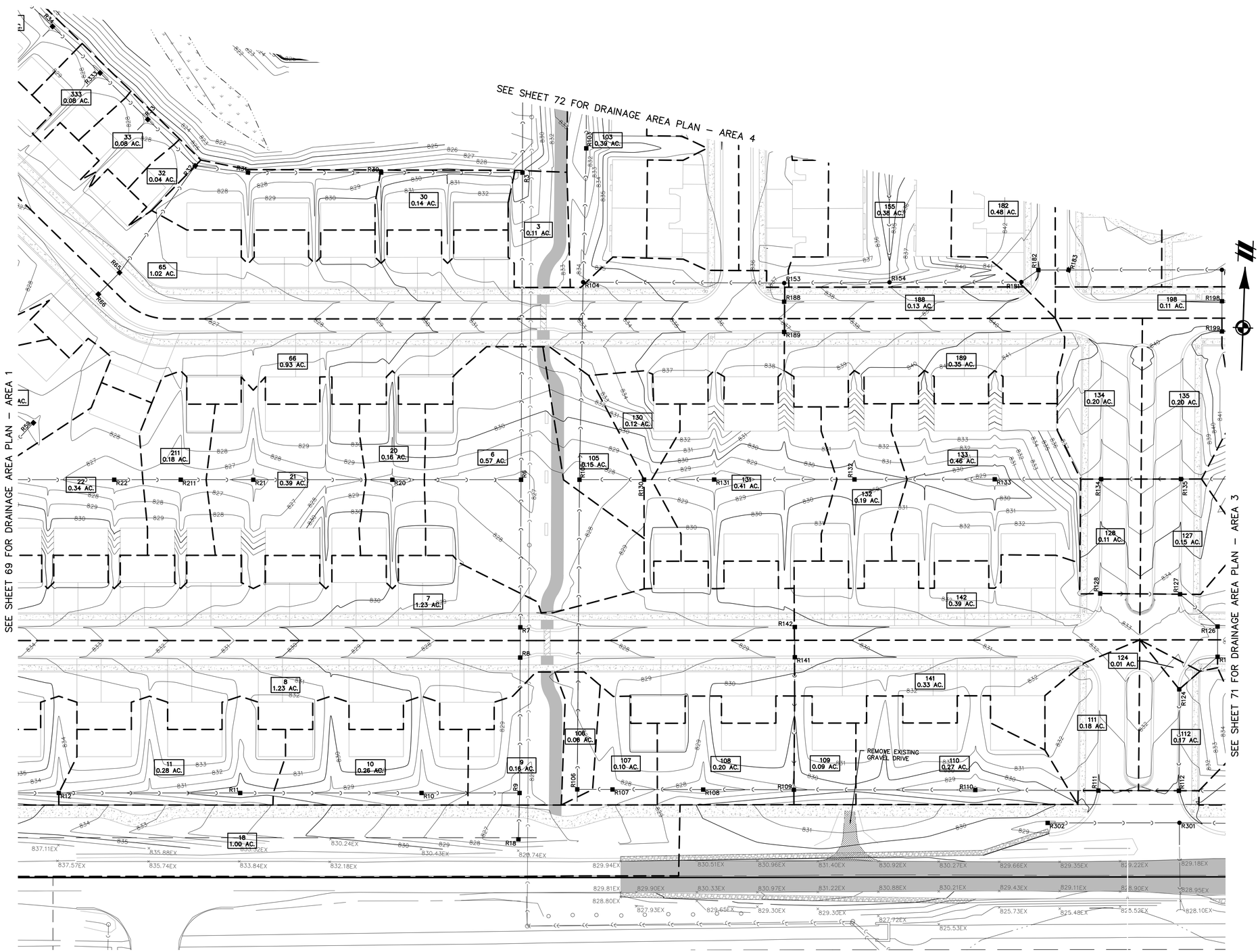
DATE
SEPTEMBER 13, 2016

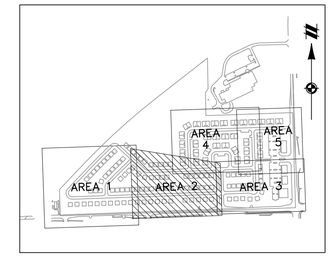
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM–SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM–SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		
SHEET NO.	69		





KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PROPOSED STORM SEWER
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED CATCH BASIN DRAINAGE AREA
	EXISTING WETLAND
■	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 W. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

DRAINAGE AREA PLAN – AREA 2

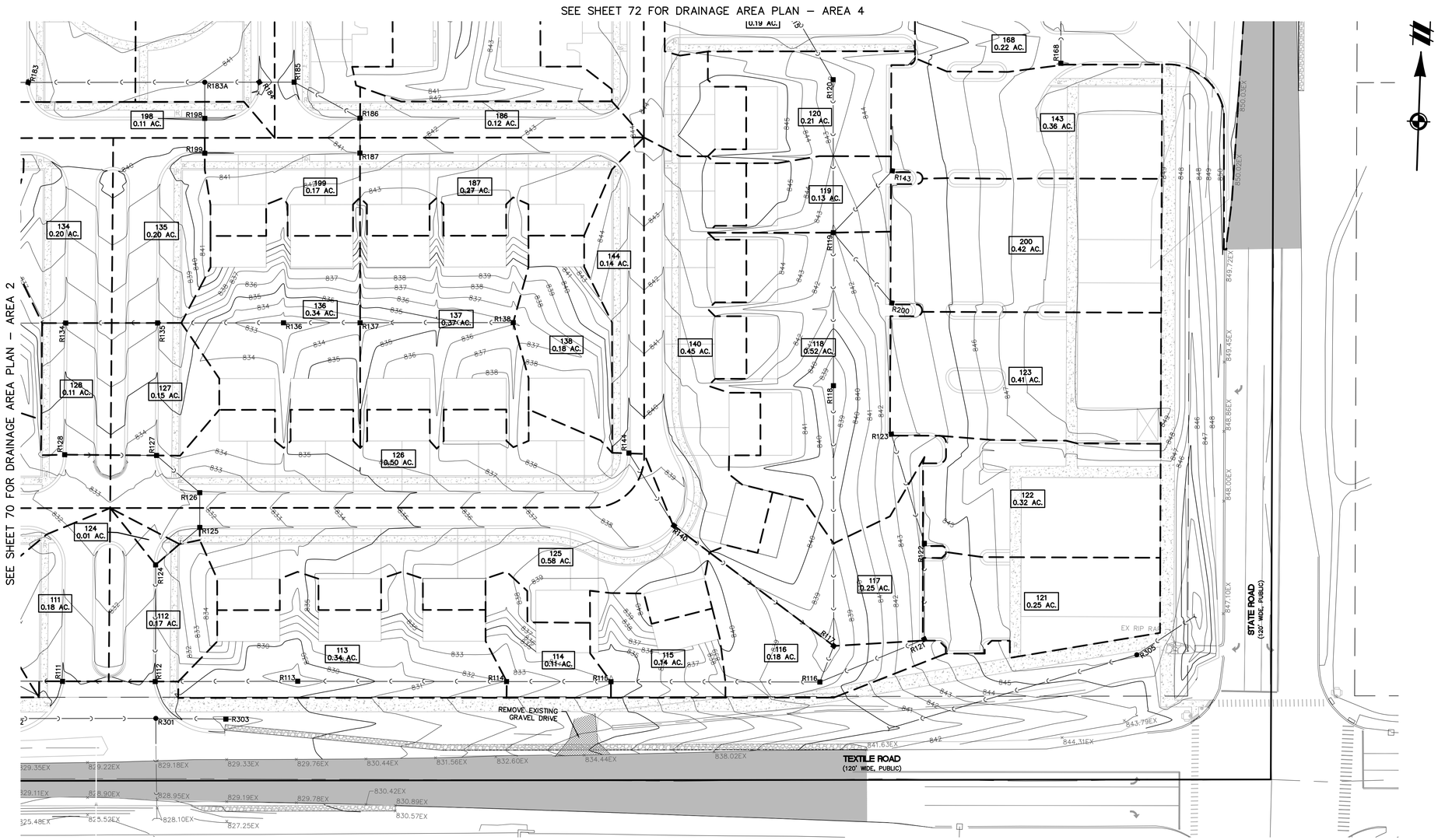
DATE
SEPTEMBER 13, 2016

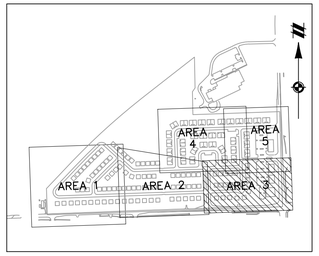
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBC

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 70	





KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PROPOSED STORM SEWER
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED CATCH BASIN DRAINAGE AREA
	EXISTING WETLAND
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

DRAINAGE AREA PLAN – AREA 3

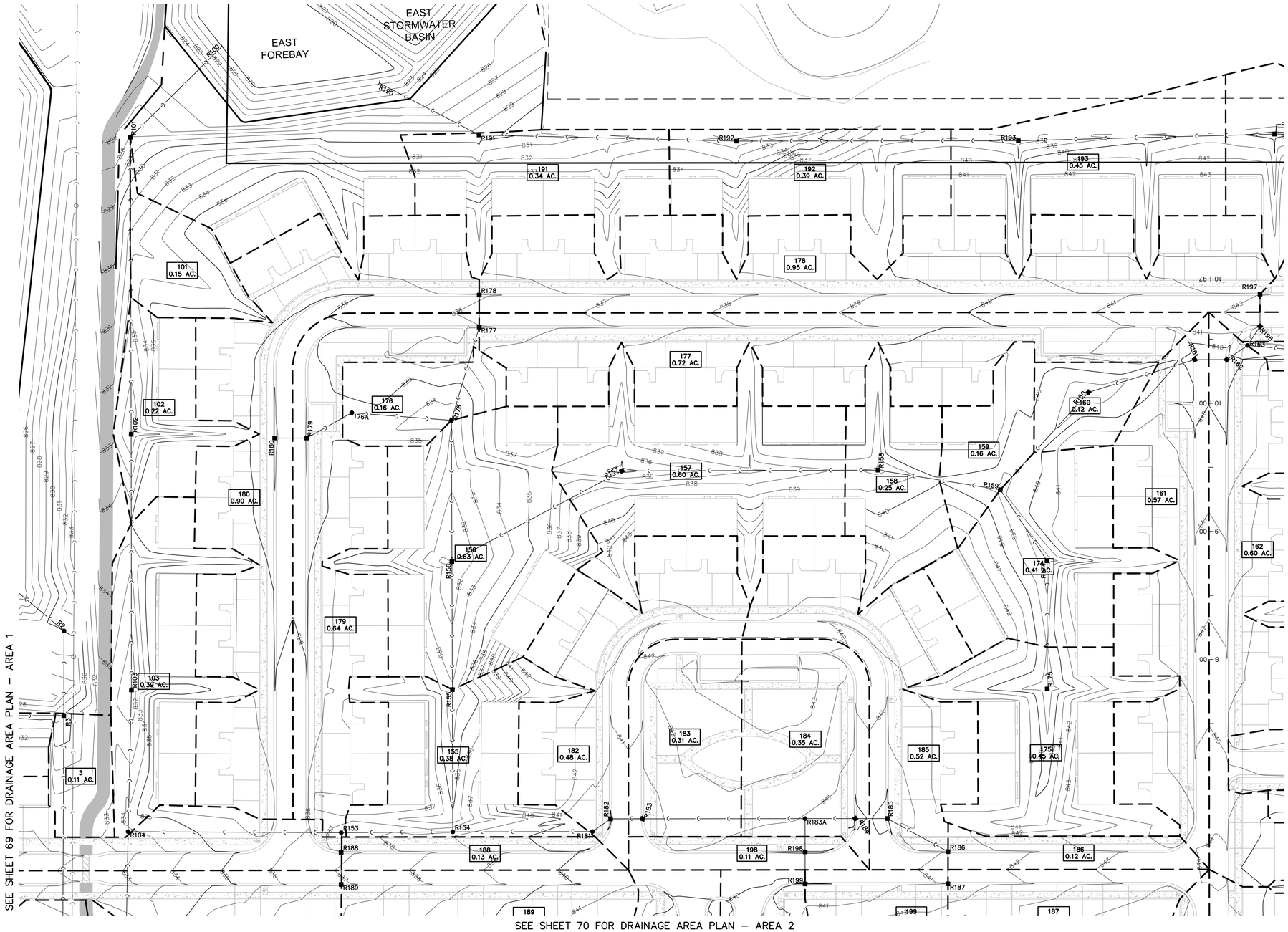
DATE
SEPTEMBER 13, 2016

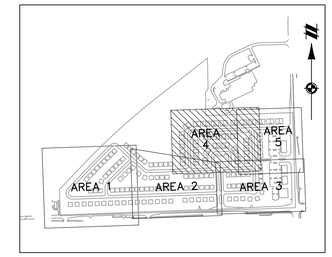
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 71	





KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
S	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED CATCH BASIN DRAINAGE AREA
	EXISTING WETLAND
■	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

DRAINAGE AREA PLAN – AREA 4

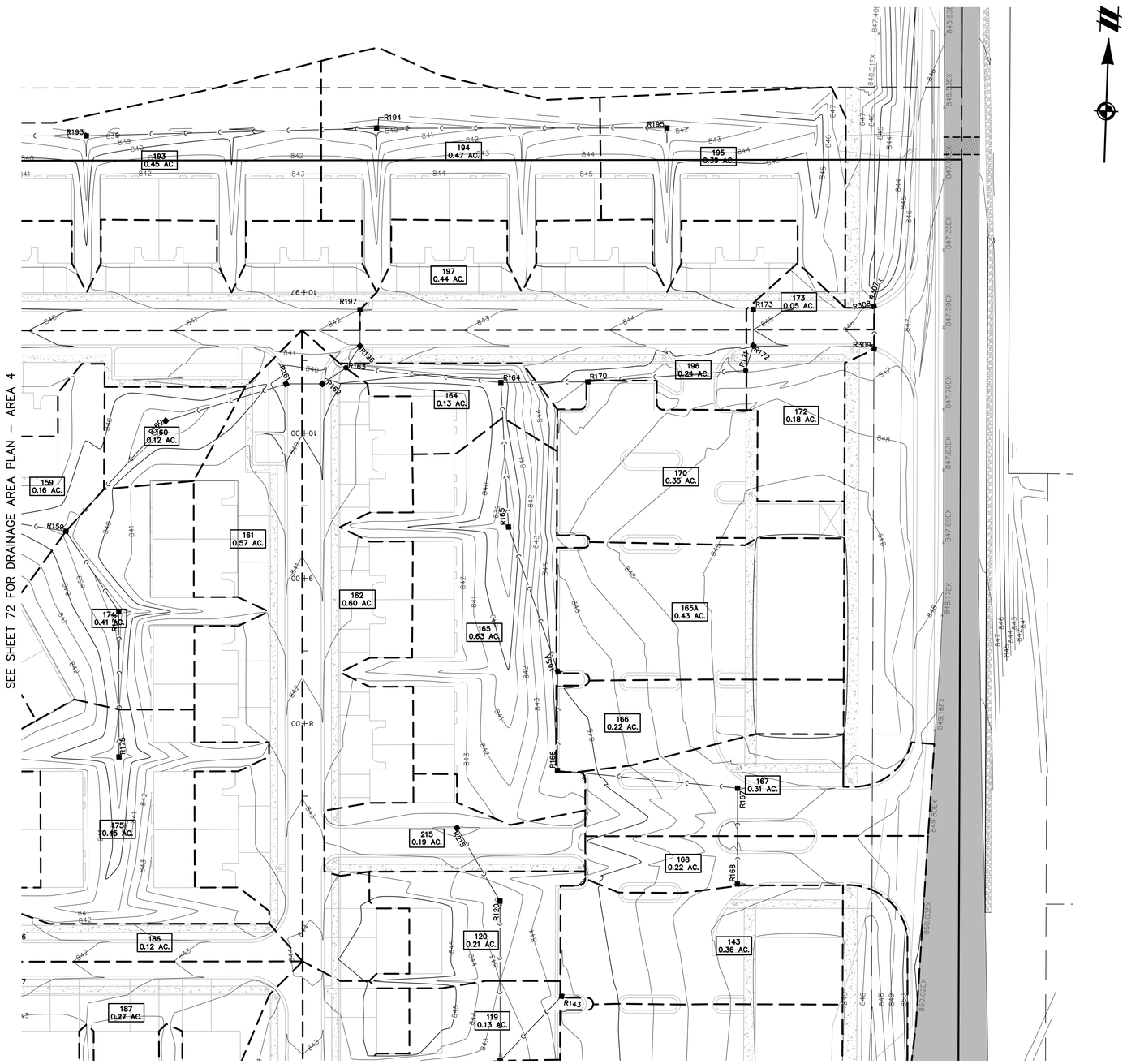
DATE
SEPTEMBER 13, 2016

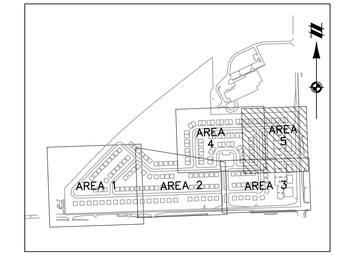
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBD

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 72	





KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
S	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED LOT
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED CATCH BASIN DRAINAGE AREA
	EXISTING WETLAND
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

DRAINAGE AREA PLAN – AREA 5

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP./WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBC

REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 73

LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED STORM SEWER
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING WELL
- EXISTING SIGN
- U.P. EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- AREAS OF ON-STREET PARKING
- PROPOSED HYDRANT COVER
- PROPOSED SIGNS (SEE PLAN)
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

inches

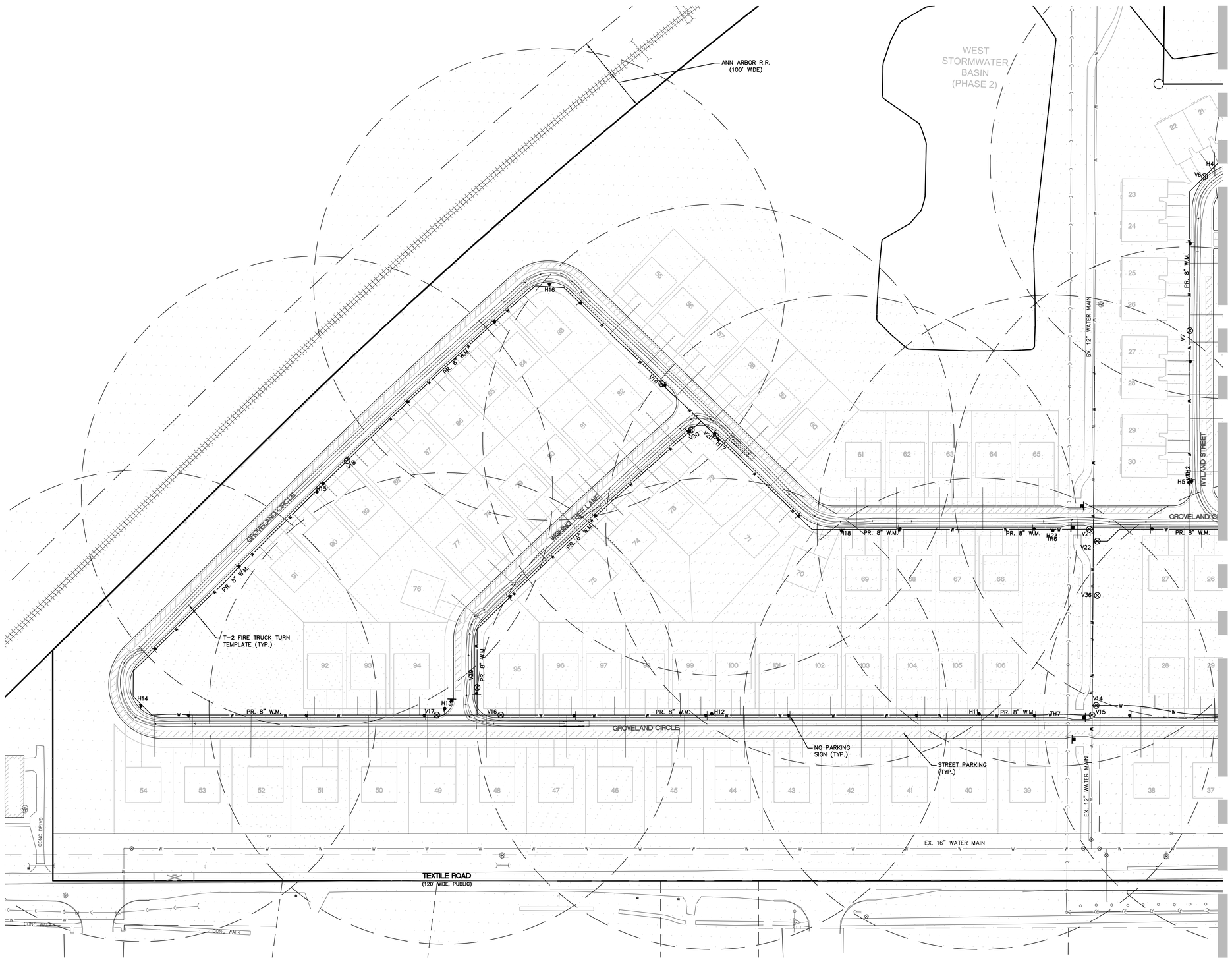
Track	: 82.9
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

T-2 FIRE TRUCK DETAIL

NO SCALE

NOTES:

1. PROPOSED WATER MAIN IS 8-INCH DIAMETER UNLESS OTHERWISE NOTED.



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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 W. HURON
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

FIRE PROTECTION PLAN WEST

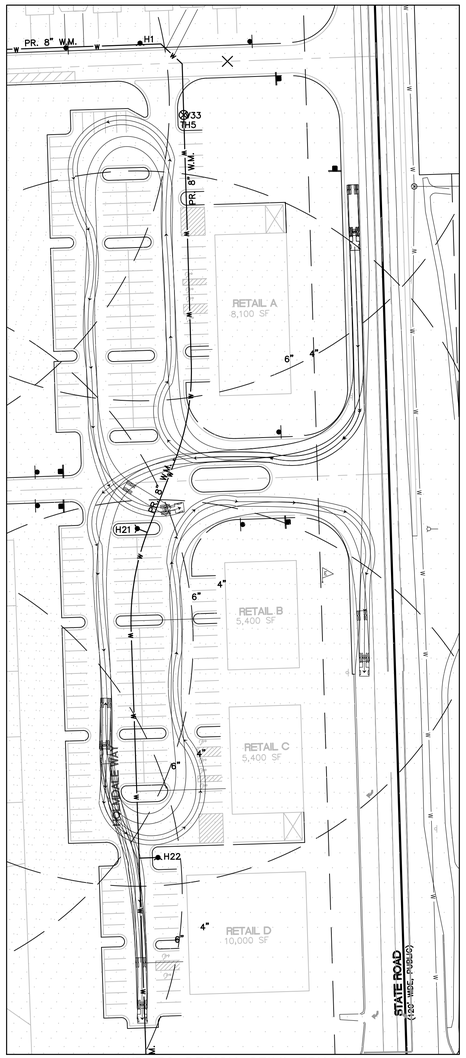
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

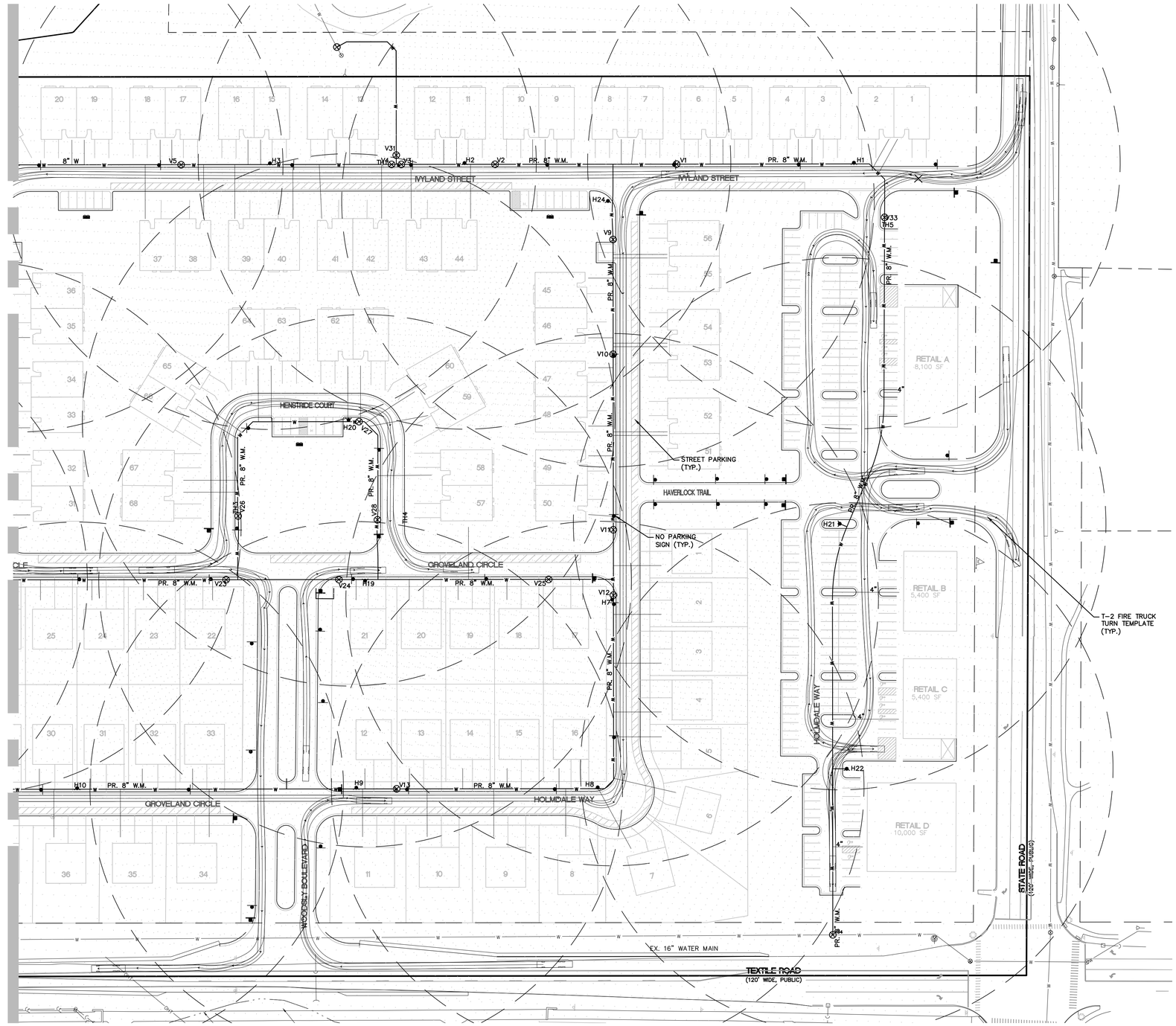
SCALE 0 30 60
SCALE: 1" = 60'

DR.	SK	CH.	SS
P.M.	MB		
BOOK			
JOB	13001886.10		
SHEET NO.	74		



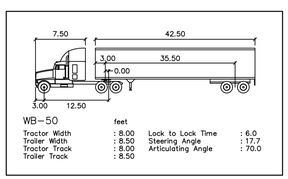
WB-50 DESIGN SEIMI-TRUCK CIRCULATION DETAIL

SCALE: 1" = 60'



LEGEND

- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- EXISTING SIGN
- U.P. EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- AREAS OF ON-STREET PARKING
- PROPOSED HYDRANT COVER
- PROPOSED SIGNS (SEE PLAN)
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT

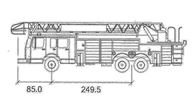


WB-50 feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 17.7
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.50		

WB-50 SEMI-TRUCK DETAIL

NO SCALE



inches

Track	: 82.9
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

T-2 FIRE TRUCK DETAIL

NO SCALE

NOTES:

1. PROPOSED WATER MAIN IS 8-INCH DIAMETER UNLESS OTHERWISE NOTED.
2. THE FOLLOWING INFORMATION WILL BE PROVIDED FOR THE PROPOSED RETAIL BUILDINGS WHEN ACTUAL BUILDING USES ARE DETERMINED:
   - 2.1. SIZE FOR COMMERCIAL SERVICE LEADS (TO BE IN CONFORMANCE WITH TOWNSHIP REQUIREMENTS)
   - 2.2. PROPOSED BUILDING HEIGHTS
   - 2.3. DOMESTIC AND FIRE SERVICE LEADS (SIZE AND LOCATION)
   - 2.4. PIV LOCATIONS
   - 2.5. FDC (FIRE DEPT. CONNECTION) LOCATIONS
   - 2.6. METER ROOM LOCATIONS

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

FIRE PROTECTION PLAN EAST

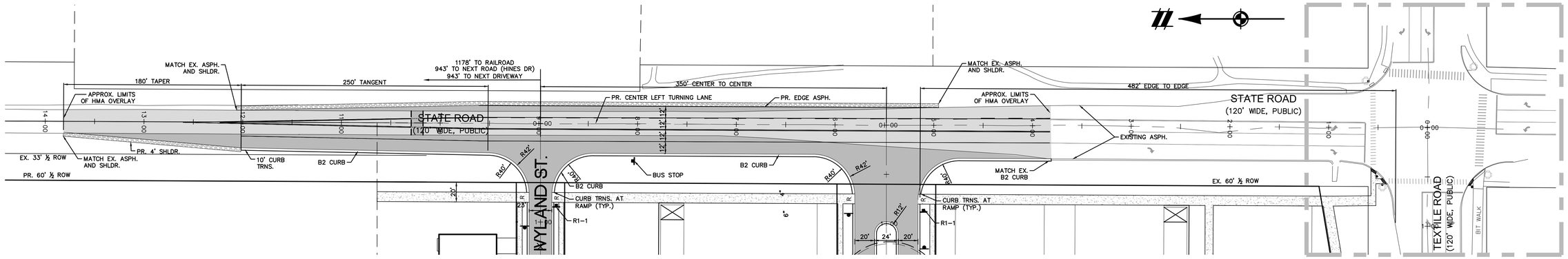
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBD

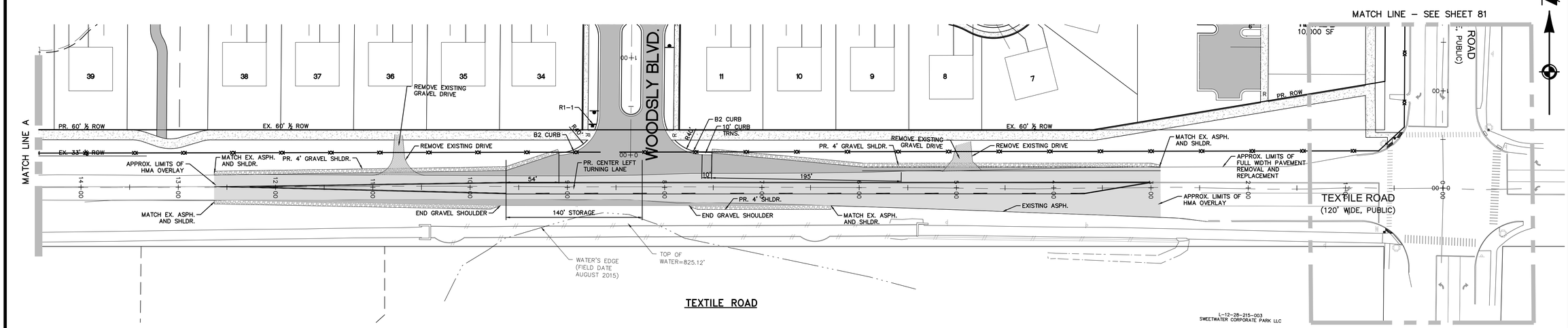
REVISIONS

SCALE 0 30 60
SCALE: 1" = 60'

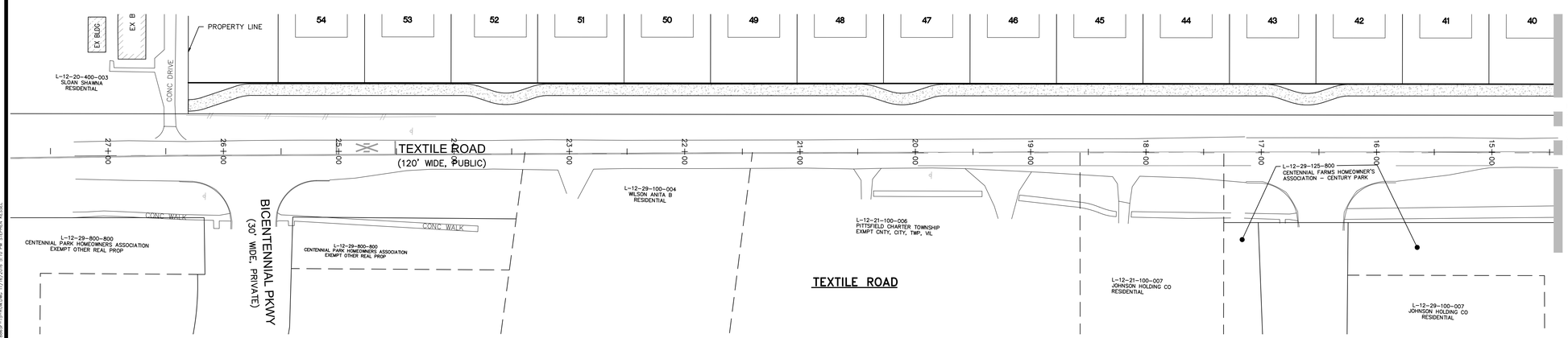
DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 75



STATE ROAD



TEXTILE ROAD



LEGEND

- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING RAILROAD
- PR. LOT
- PR. SETBACK
- PR. R.O.W.
- PR. BACK/EDGE CURB
- PR. CENTERLINE
- EXISTING SIGN
- SECTION CORNER
- PR. SIGN
- PR. GRAVEL SHLDR.
- PR. WALK
- PR. ASPHALT
- PR. ASPHALT OVERLAY (AS DIRECTED BY WCRC)
- PR. DEMOLITION

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STATE AND TEXTILE IMPROVEMENTS PLAN

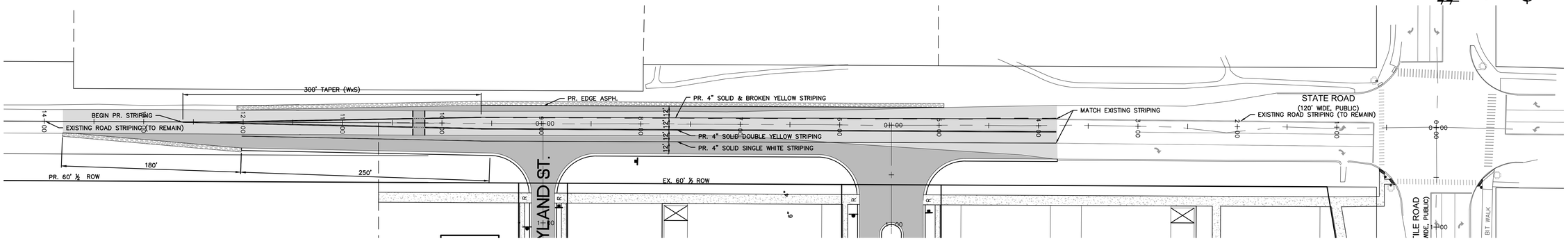
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

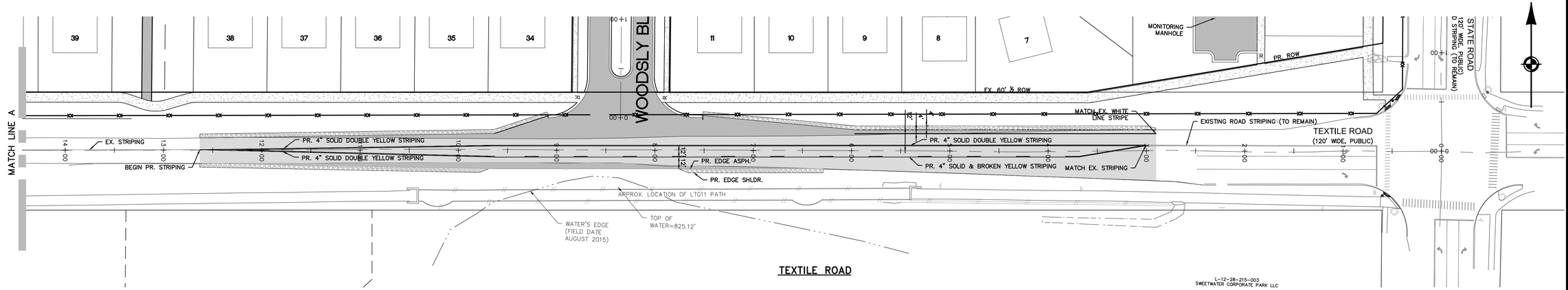
REVISIONS

SCALE 0 25 50
SCALE: 1" = 50'

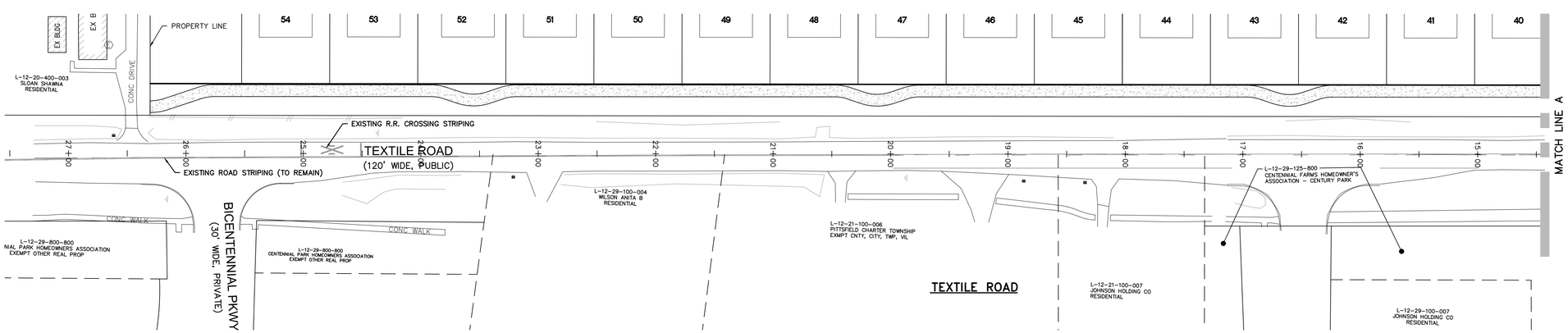
DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 76



STATE ROAD



TEXTILE ROAD



LEGEND

- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING RAILROAD
- PR. LOT
- PR. SETBACK
- PR. R.O.W.
- PR. BACK/EDGE CURB
- PR. CENTERLINE
- EXISTING SIGN
- SECTION CORNER
- PR. SIGN
- PR. GRAVEL SHLDR.
- PR. WALK
- PR. ASPHALT
- PR. ASPHALT OVERLAY (AS DIRECTED BY WCRC)

NOTES:

1. ALL PAVEMENT MARKINGS AND ROAD STRIPING SHALL BE PER 2011 MICHIGAN MANUAL TRAFFIC CONTROL DEVICES (AS UPDATED)

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN
STATE AND TEXTILE STRIPING PLAN

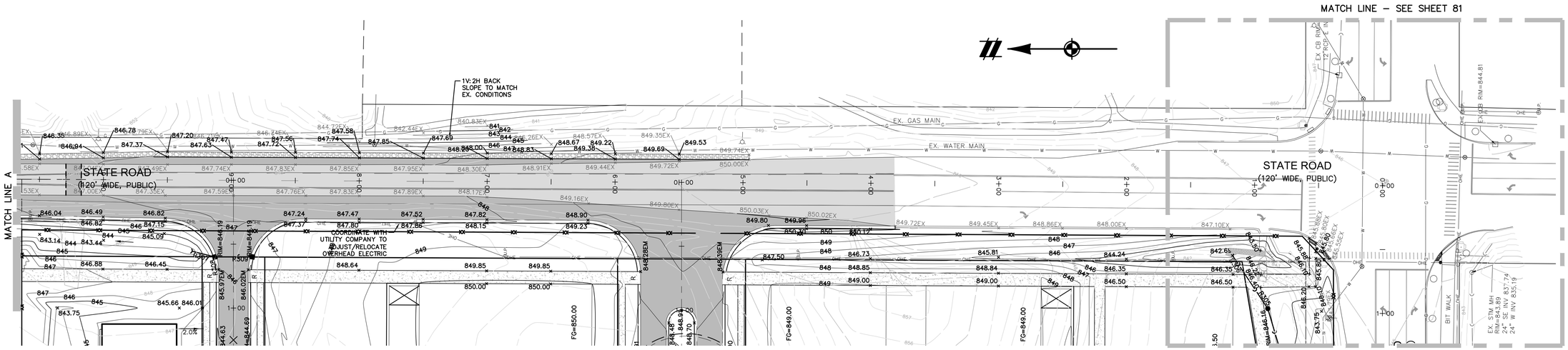
DATE
SEPTEMBER 13, 2016

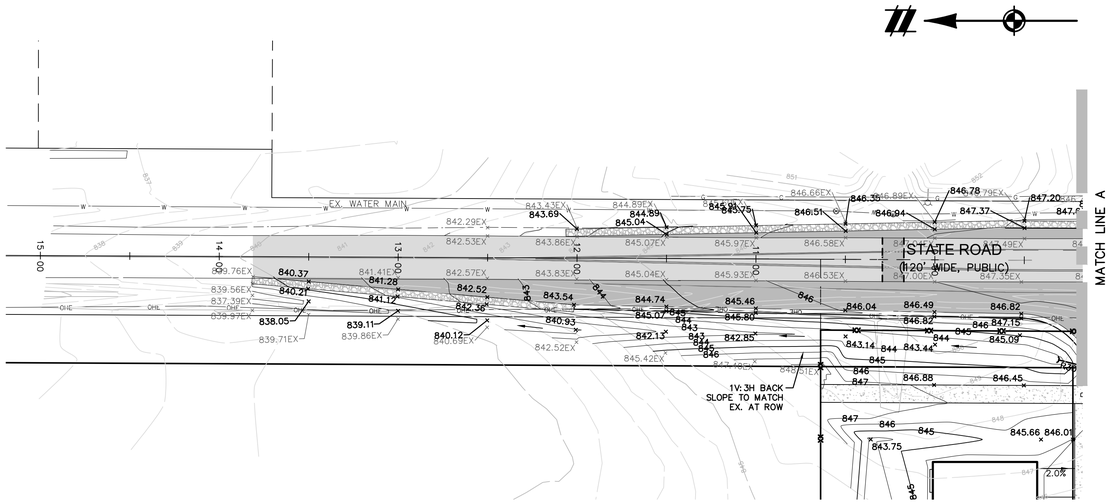
11/19/2015: PER WCRC
01/18/2016: TWP, WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

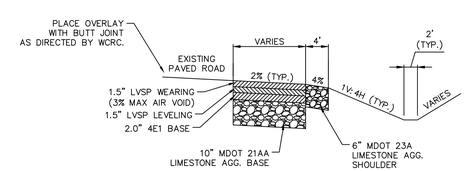
REVISIONS

SCALE 0 25 50
SCALE: 1" = 50'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 77	







NOTES:

1. REFER TO CURRENTLY APPROVED WCRC HMA MIX DESIGNS AND BINDER REQUIREMENTS
2. ALL HMA SHALL LIMIT RAP TO 25%

TYPICAL WIDENING PAVEMENT CROSS-SECTION

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PR. LOT
	PR. SETBACK
	PR. R.O.W.
	PR. BACK/EDGE CURB
	PR. CENTERLINE
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PR. GRAVEL SHLDR.
	PR. WALK
	PR. STRIPING

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STATE ROAD GRADING PLAN

DATE
SEPTEMBER 13, 2016

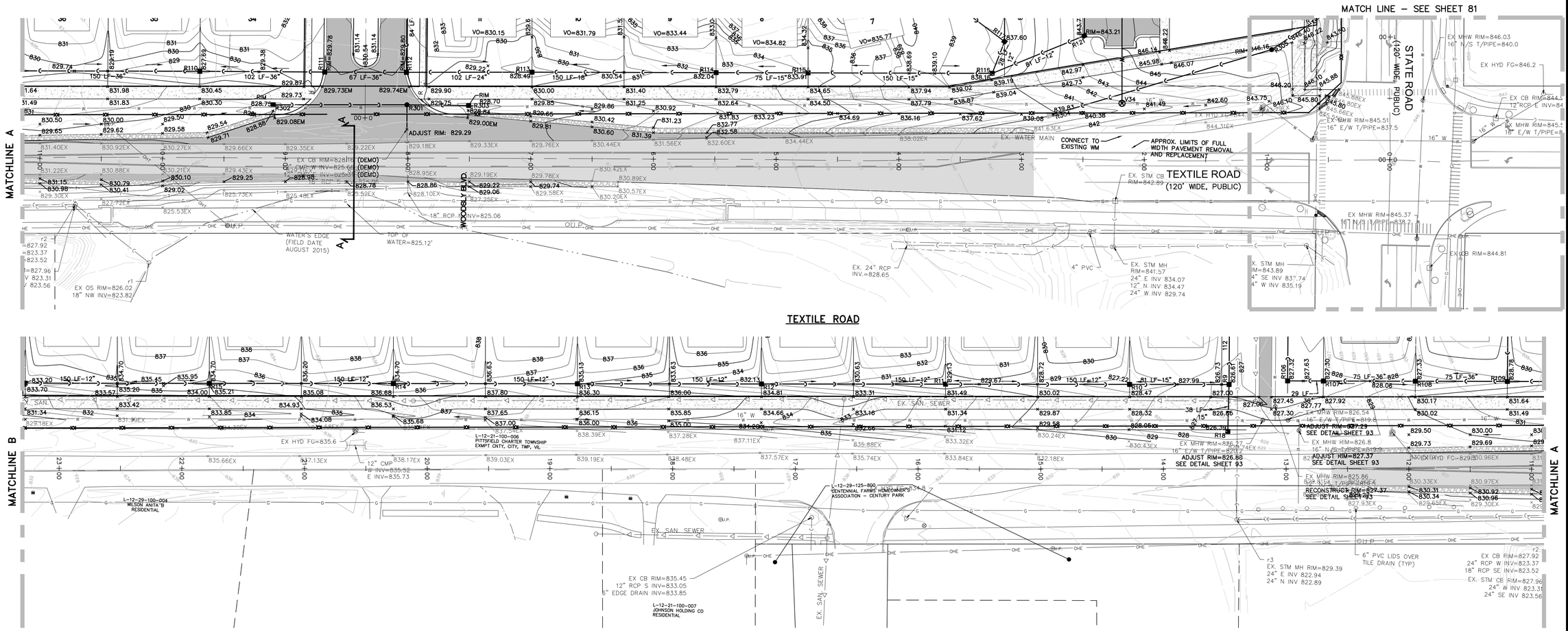
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

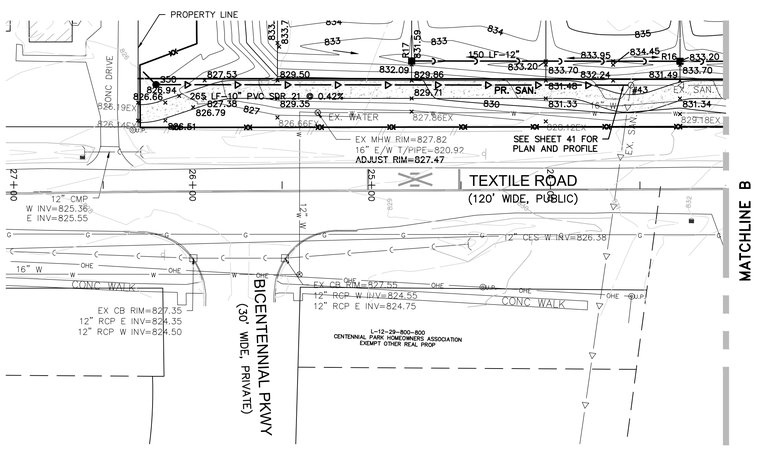
REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

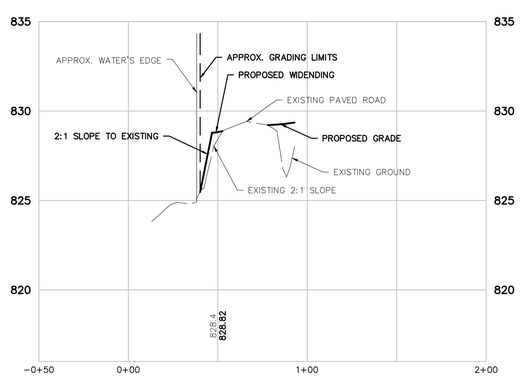
DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 78	

J:\13001886\DWG\FINAL SITE PLANS\13001886SP-13-ROAD.DWG 11/16/2016 3:12 PM STEPHEN WEISS





TEXTILE ROAD



ROAD WIDENING CROSS-SECTION
VERT: 1"=4'
HORZ: 1"=40'

SECTION A–A

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING RAILROAD
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PR. LOT
- PR. SETBACK
- PR. R.O.W.
- PR. BACK/EDGE CURB
- PR. CENTERLINE
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- PR. GRAVEL SHLDR.
- PR. WALK
- PR. STRIPING

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

TEXTILE ROAD GRADING PLAN

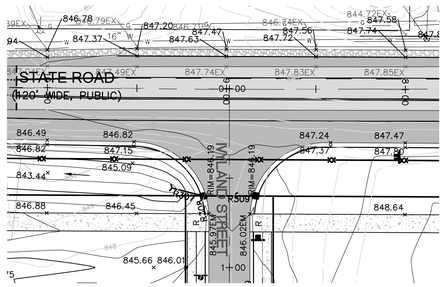
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP, WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

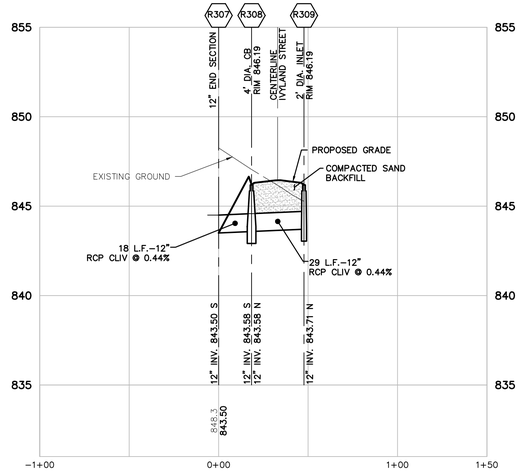
REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 79	



STATE ROAD STORM SEWER PLAN

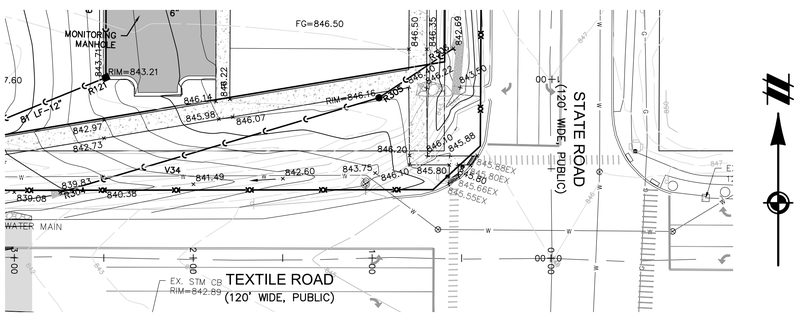


AT IVYLAND STREET R307-R309
VERT: 1"=4'
HORZ: 1"=40'

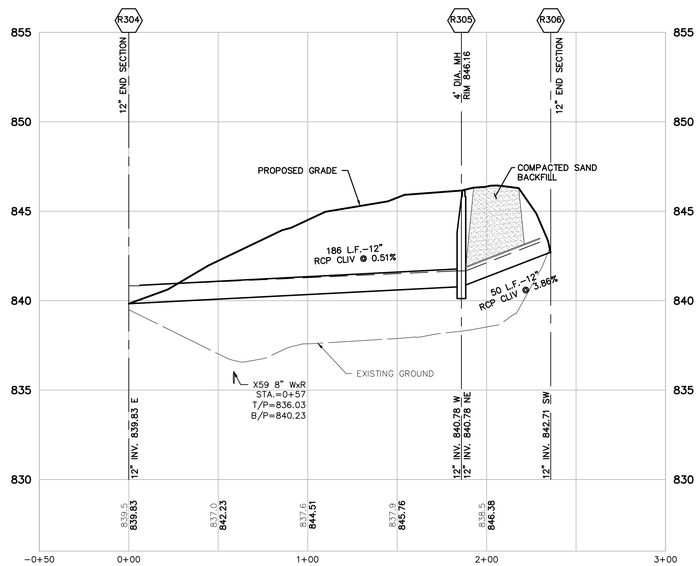
LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PR. LOT
	PR. SETBACK
	PR. R.O.W.
	PR. BACK/EDGE CURB
	PR. CENTERLINE
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PR. GRAVEL SHLDR.
	PR. WALK
	PR. STRIPING

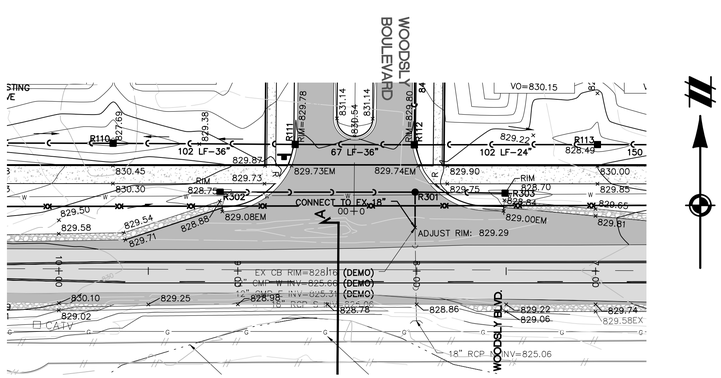
* SEE SHEET 67 FOR FRONTAGE STORM SEWER CONVEYANCE CALCULATIONS



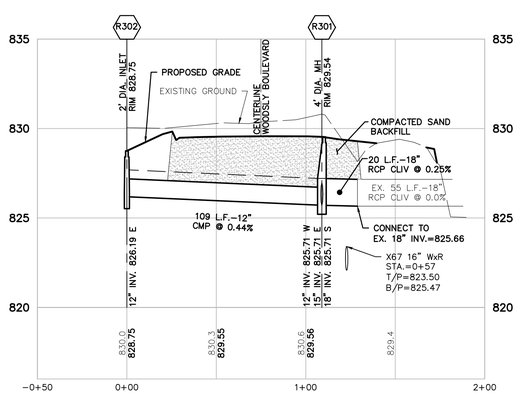
STATE AND TEXTILE ROAD STORM SEWER PLAN



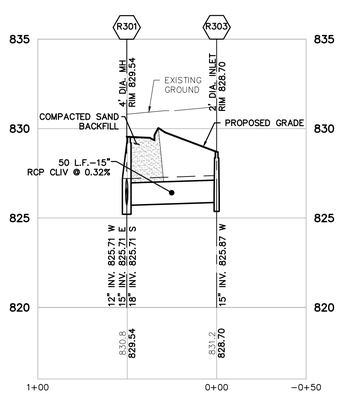
STATE AND TEXTILE CULVERT
VERT: 1"=4'
HORZ: 1"=40'



TEXTILE ROAD STORM SEWER PLAN



AT WOODSLY BOULEVARD R302-EXR1
VERT: 1"=4'
HORZ: 1"=40'



R301-R303
VERT: 1"=4'
HORZ: 1"=40'

Know what's below. Call before you dig.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STATE AND TEXTILE STORM PLAN AND PROFILE

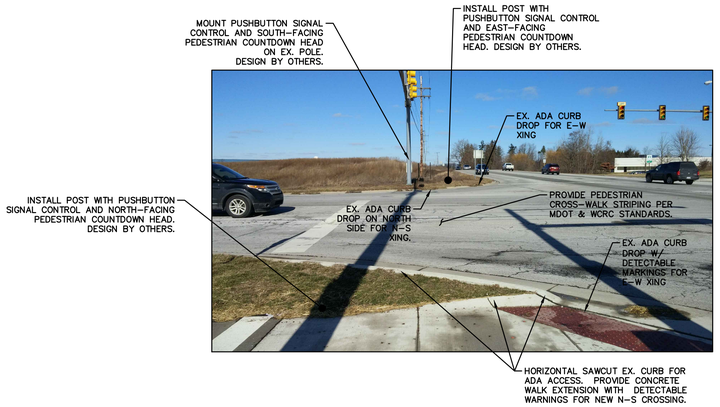
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

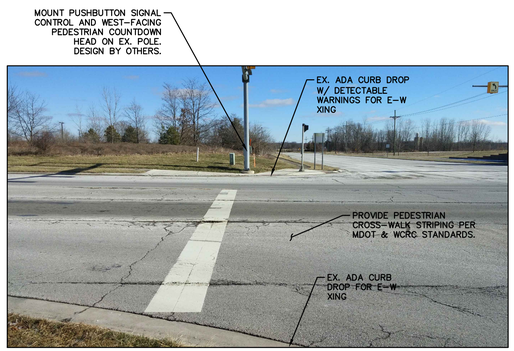
REVISIONS

SCALE 0 25 50
SCALE: 1" = 50'

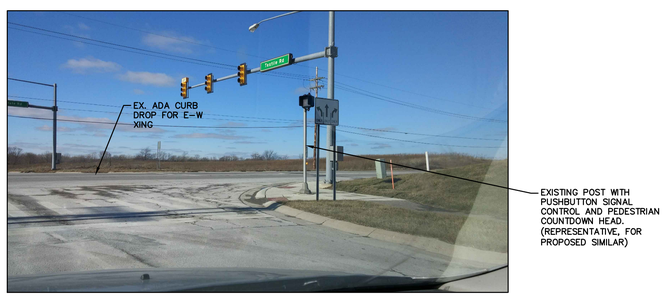
DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 80	



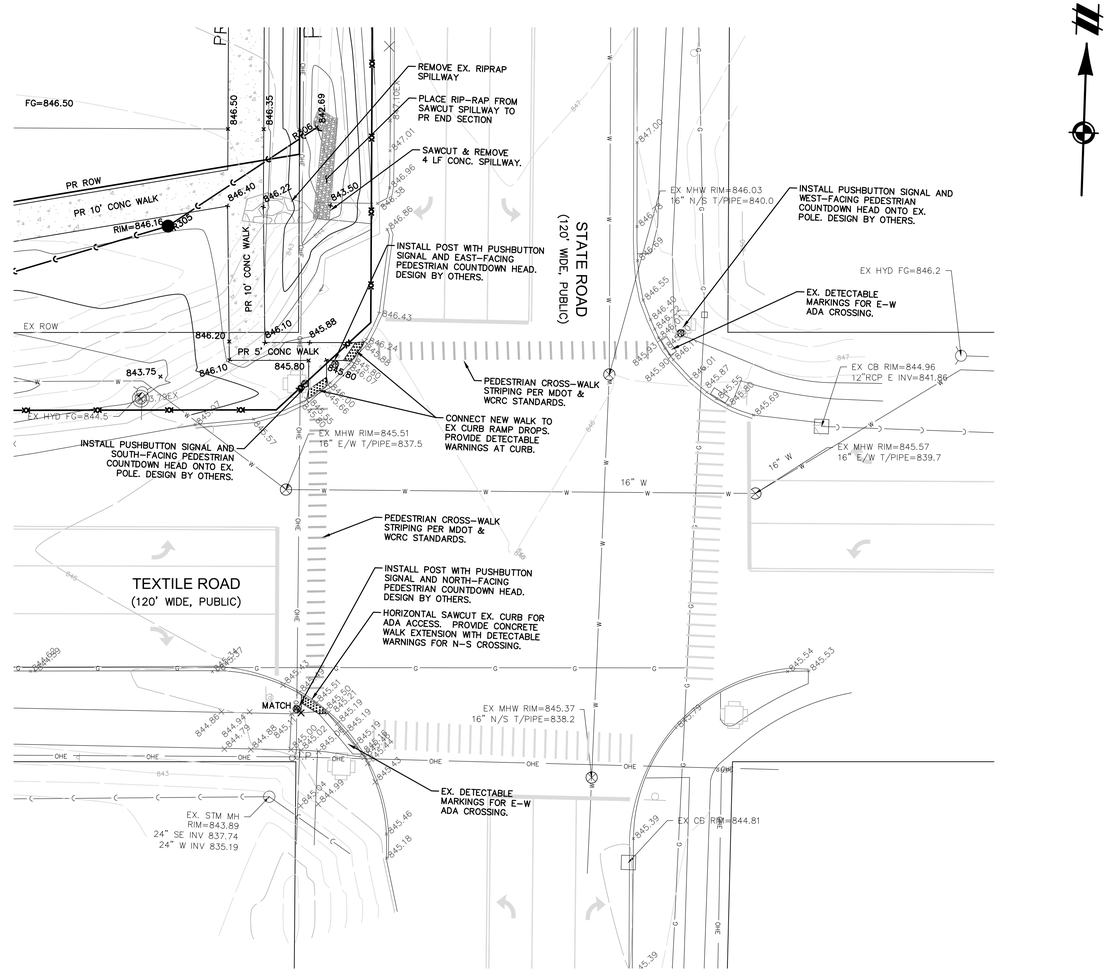
NORTH-FACING VIEW OF EXISTING CONDITIONS FOR TEXTILE ROAD CROSSING.



EAST-FACING VIEW OF EXISTING CONDITIONS FOR STATE ROAD CROSSING.



WEST-FACING VIEW OF EXISTING CONDITIONS FOR STATE ROAD CROSSING.



STATE AND TEXTILE INTERSECTION IMPROVEMENT PLAN

SCALE: 1" = 20 FEET

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING CURB AND GUTTER
	BOUNDARY LINE
	EXISTING RAILROAD
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PR. LOT
	PR. SETBACK
	PR. R.O.W.
	PR. BACK/EDGE CURB
	PR. CENTERLINE
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	PR. GRAVEL SHLDR.
	PR. WALK
	PR. STRIPING

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN
STATE ROAD PEDESTRIAN CROSSING PLAN

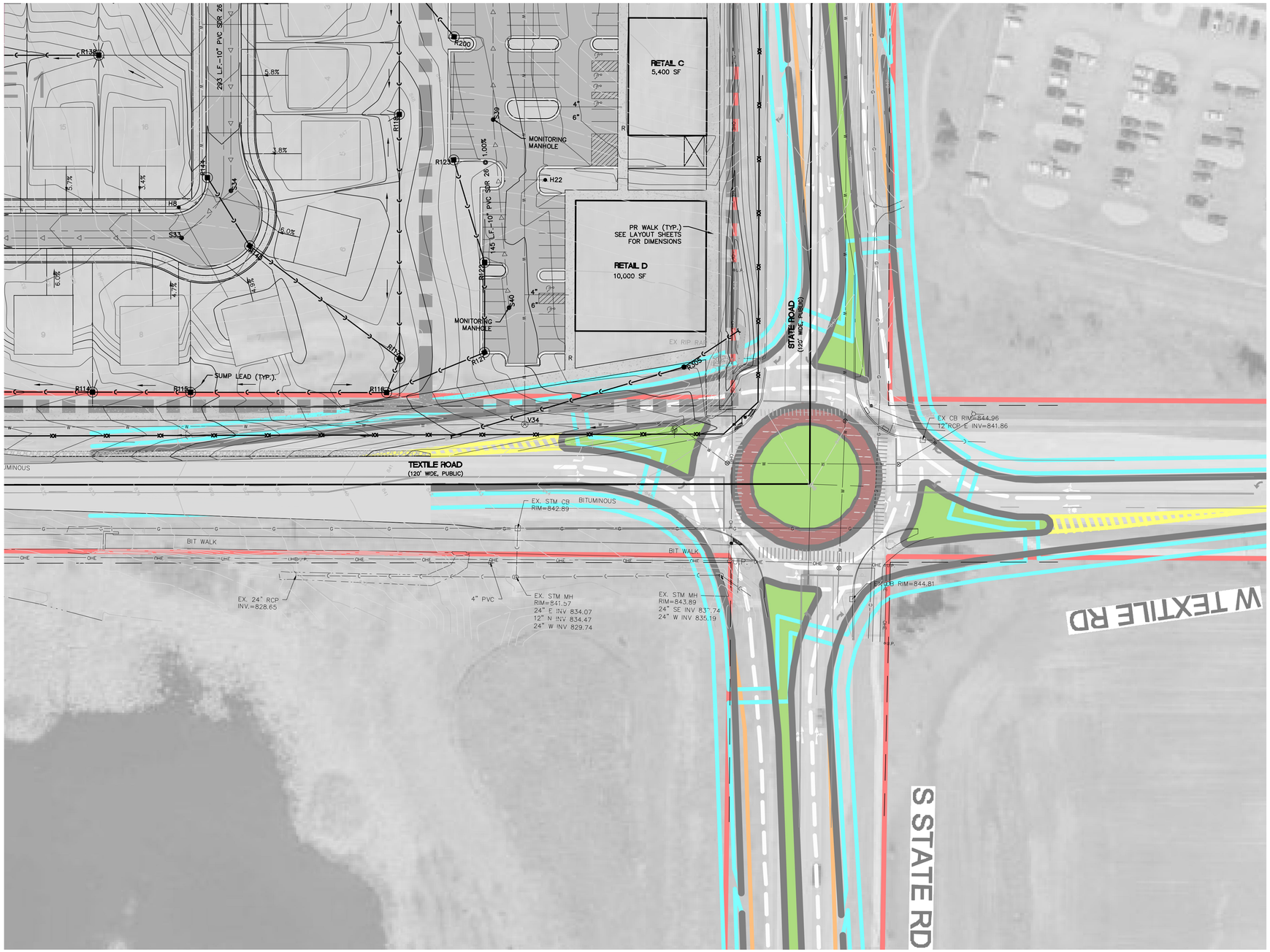
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 10 20
SCALE: 1" = 20'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 81	



FUTURE STATE AND TEXTILE ROAD ROUNABOUT OVERLAY

LEGEND

- 801 — EXISTING 1' CONTOUR
- 800 — EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- OHE — EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- W — EXISTING WATER MAIN
- EXISTING SANITARY
- G — EXISTING GAS
- EXISTING RAILROAD
- 801 — PROPOSED 1' CONTOUR
- 800 — PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- W — PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- 890 — PROPOSED CONTOUR
- PROPOSED SILT FENCE
- EXISTING WELL
- EXISTING SIGN
- U.P. — EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WETLAND
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT
- PROPOSED INLET FILTER
- PROPOSED MUD MAT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN
STATE AND TEXTILE ROAD
ROUNABOUT OVERLAY

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

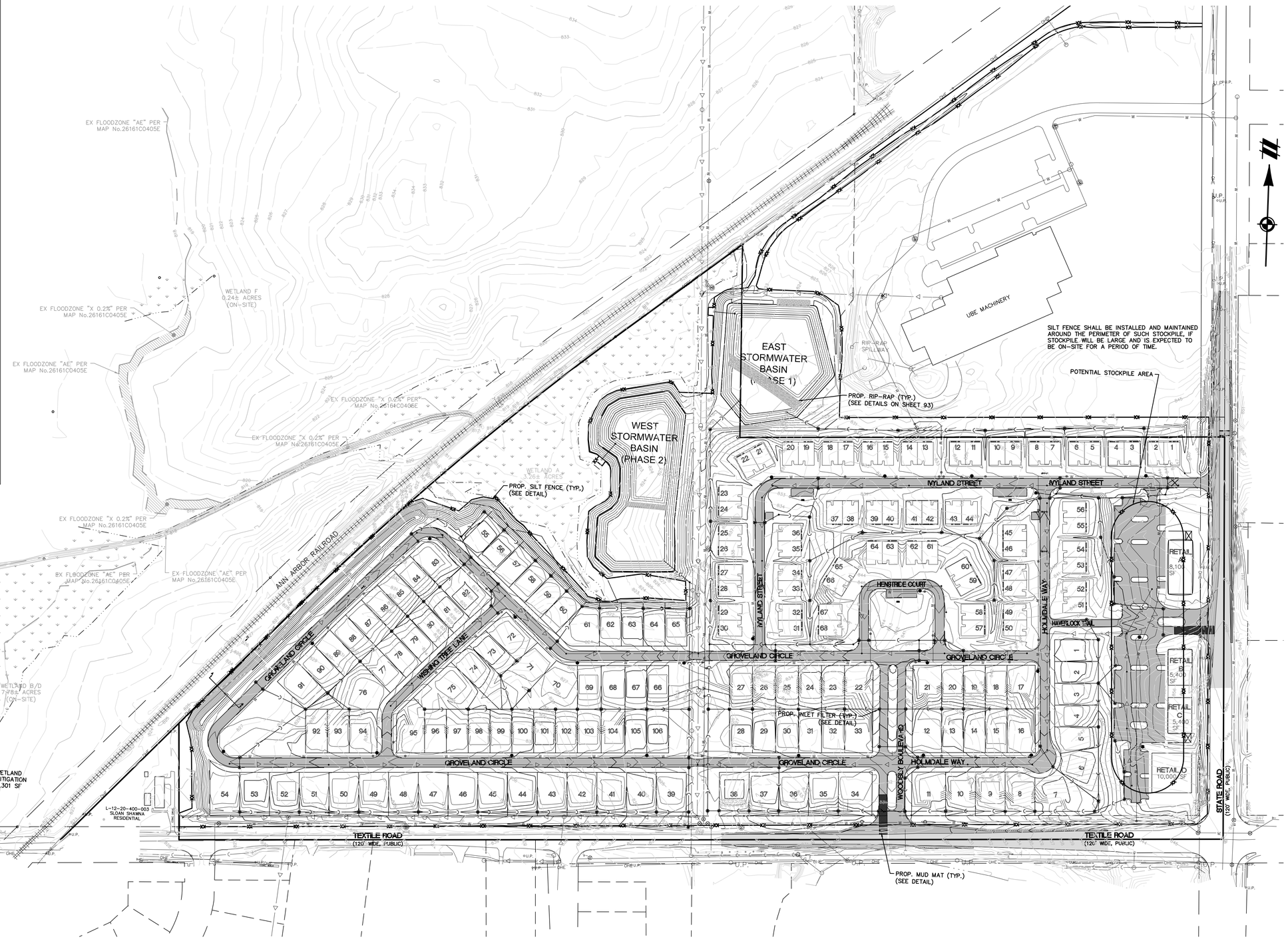
REVISIONS

SCALE 0 20 40
SCALE: 1" = 40'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 82	

LEGEND

- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- EXISTING WETLAND LINE
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING OVERHEAD TELEPHONE LINE
- EXISTING FENCE
- EXISTING CURB AND GUTTER
- BOUNDARY LINE
- EXISTING STORM
- EXISTING WATER MAIN
- EXISTING SANITARY
- EXISTING GAS
- EXISTING RAILROAD
- EXISTING FLOOD ZONE
- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED SANITARY
- PROPOSED WATER MAIN
- PROPOSED LOT
- PROPOSED SETBACK
- PROPOSED EASEMENT
- PROPOSED R.O.W.
- PROPOSED BACK/EDGE CURB
- PROPOSED CENTERLINE
- PROPOSED ELEVATION
- PROPOSED SILT FENCE
- EXISTING WELL
- EXISTING SIGN
- EXISTING UTILITY POLE
- EXISTING FIRE HYDRANT
- EXISTING CABLE MARKER
- EXISTING TELEPHONE RISER
- SECTION CORNER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN/INLET
- EXISTING WATER MANHOLE
- EXISTING WETLAND
- EXISTING RIP-RAP
- PROPOSED RIP-RAP
- PROPOSED CATCH BASIN/INLET
- PROPOSED OUTLET
- PROPOSED MANHOLE
- PROPOSED WATER VALVE IN WELL
- PROPOSED FIRE HYDRANT
- PROPOSED INLET FILTER
- PROPOSED MUD MAT



SEE SHEET 84 & 92 FOR SOIL EROSION DETAILS

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

SOIL EROSION AND SEDIMENT CONTROL PLAN

DATE
SEPTEMBER 13, 2016

REVISIONS
- 11/19/2015: PER WCRC
- 01/18/2016: TWP. WETLAND REVIEW
- 02/09/2016: TWP/WCWRC/WCRC
- 03/09/2016: PER WCWRC
- 03/15/2016: PER WCRC
- 04/19/2016: PER WCRC
- 06/03/2016: PER TWP.
- 06/21/2016: PER SESC CHECKLIST
- 07/14/2016: MDEQ WM-SAN PERMITS
- 07/19/2016: PER TWP.
- 07/21/2016: MDEQ WM-SAN PERMITS
- 08/17/2016: PER TWP.
- 09/13/2016: PER TWP.
- 11/16/2016: PROP. LINE MOD. PER UBE

SCALE 0 60 120
SCALE: 1" = 120'

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 83	

CALCULATED SOIL LOSS

THE FOLLOWING ARE CALCULATED SOIL LOSS FOR THE CONSTRUCTION SITE

Site Information:

County:	Washtenaw
Site:	Inglewood Park
Soil:	Blount (BbB)
Slope:	3%
Slope Length:	100ft.
Mulch Type:	Straw/hay
Mulch Rate:	1.5 (tons/acre)
Acreage:	3.62 acre(s)

Calculated Soil Loss:

Erosion Factors:	R = 100 K = 0.43 LS = 0.41 C = 0.12 P = 1
Tolerable Soil Loss:	T = 3 (tons/acre/year)
Calculated Soil Loss:	A = 2.12 (tons/acre/year)
Potential soil loss (total):	7.66 (tons/year)

Site Information:

County:	Washtenaw
Site:	Inglewood Park
Soil:	Morley (MoB)
Slope:	3%
Slope Length:	50ft.
Mulch Type:	Straw/hay
Mulch Rate:	1.5 (tons/acre)
Acreage:	44.51 acre(s)

Calculated Soil Loss:

Erosion Factors:	R = 100 K = 0.37 LS = 0.3 C = 0.12 P = 1
Tolerable Soil Loss:	T = 3 (tons/acre/year)
Calculated Soil Loss:	A = 1.33 (tons/acre/year)
Potential soil loss (total):	59.29 (tons/year)

Site Information:

County:	Washtenaw
Site:	Inglewood Park
Soil:	Pewamo (Pe)
Slope:	3%
Slope Length:	50ft.
Mulch Type:	Straw/hay
Mulch Rate:	1.5 (tons/acre)
Acreage:	12.89 acre(s)

Calculated Soil Loss:

Erosion Factors:	R = 100 K = 0.24 LS = 0.3 C = 0.12 P = 1
Tolerable Soil Loss:	T = 5 (tons/acre/year)
Calculated Soil Loss:	A = 0.86 (tons/acre/year)
Potential soil loss (total):	11.14 (tons/year)

Site Information:

County:	Washtenaw
Site:	Inglewood Park
Soil:	Morley (MoC)
Slope:	3%
Slope Length:	400ft.
Mulch Type:	Straw/hay
Mulch Rate:	1.5 (tons/acre)
Acreage:	1.85 acre(s)

Calculated Soil Loss:

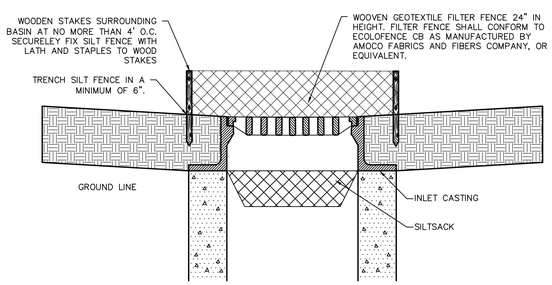
Erosion Factors:	R = 100 K = 0.37 LS = 0.8 C = 0.12 P = 1
Tolerable Soil Loss:	T = 4 (tons/acre/year)
Calculated Soil Loss:	A = 3.55 (tons/acre/year)
Potential soil loss (total):	6.57 (tons/year)

Site Information:

County:	Washtenaw
Site:	Inglewood Park
Soil:	Fox (FoD)
Slope:	20%
Slope Length:	25ft.
Mulch Type:	Straw/hay
Mulch Rate:	1.5 (tons/acre)
Acreage:	0.27 acre(s)

Calculated Soil Loss:

Erosion Factors:	R = 100 K = 0.24 LS = 1.24 C = 0.12 P = 1
Tolerable Soil Loss:	T = 4 (tons/acre/year)
Calculated Soil Loss:	A = 3.57 (tons/acre/year)
Potential soil loss (total):	0.96 (tons/year)



REAR YARD STORM SEWER INLET FILTER

NO SCALE

SOIL EROSION CONTROL SEQUENCE AND APPROXIMATE SCHEDULE

#	SESC SEQUENCE TASK NAME	Est. Duration	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6
1	INSTALL SEDIMENT FENCE AND TREE PROTECTION PRIOR TO ANY GRADING OPERATION	(1 WEEK)						
2	INSTALL MUD-TRACKING PAD	(1 WEEK)						
3	CONSTRUCT TEMPORARY SEDIMENTATION/DETENTION BASIN	(1 WEEK)						
4	PLACE TOPSOIL, FERTILIZER, SEED AND MULCH OVER THE ENTIRE DETENTION BASIN AREA	(1 WEEK)						
5	ROUGH GRADE SITE, STOCKPILE TOPSOIL AND BEGIN BUILDING CONSTRUCTION	(2 WEEKS)						
6	INSTALL STORM AND DRAINAGE SYSTEM INCLUDING RIPRAP AND PARKING LOT INLET FILTERS AND DETENTION BASIN STANDPIPE	(4WEEKS)						
7	MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES, AS REQUIERD	N/A						
8	INSTALL SANITARY SEWER AND WATER SYSTEMS	(6 WEEKS)						
9	BRING PAVEMENT AREAS TO SUB-BASE GRADE, PLACE SUB-BASE AND BITUMINOUS PAVEMENT	(3 WEEKS)						
10	INSTALL FRANCHISED UTILITIES	(3 WEEKS)						
11	FINISH GRADE, REDISTRIBUTE TOPSOIL, SEED AND MULCH ALL DISTURBED AREA	(2 WEEKS)						
12	REMOVE ANY ACCUMULATED SEDIMENT WITHIN THE DETENTION BASIN AND REPLACE CLEAN WASHED STONE AROUND	(1 WEEK)						
13	COMPLETE CONSTRUCTION OF SITE	N/A						
14	INSURE ALL SOIL IS STABILIZED. REMOVE ALL TEMPORARY SOIL EROSION CONTROL MEASURES	(5 DAYS)						

Seed and stabilize detention basins immediately upon achieving final grade, and follow Washtenaw County Water Resources Commission (WCWRC) approved specifications.

SOIL EROSION CONTROL MAINTENANCE TASKS AND SCHEDULE

DURING CONSTRUCTION

TO BE PERFORMED BY CONTRACTOR

COMPONENTS	PAVED AREAS	PERVIOUS AREAS	RIP-RAP/SILT FENCE	STORM DRAINAGE SYSTEM	OUTLET STRUCTURE	SEDIMENT FOREBAY	DETENTION AREA			SCHEDULE
INSPECT FOR SEDIMENT ACCUMULATION	X		X	X	X	X	X			WEEKLY
REMOVAL OF SEDIMENT ACCUMULATION	X		X	X	X	X	X			AS NEEDED* AND PRIOR TO TURNOVER
INSPECT FOR FLOATABLES AND DEBRIS				X	X	X	X			QUARTERLY
CLEANING FOR FLOATABLES AND DEBRIS				X	X	X	X			QUARTERLY AND AT TURNOVER
INSPECTION FOR EROSION		X	X							WEEKLY
REESTABLISH PERMANENT VEGETATION ON ERODED SLOPES		X								AS NEEDED* AND PRIOR TO TURNOVER
CLEAN DRIVES AND PARKING LOTS	X									WEEKLY OR AS DETERMINED BY PERMITTING AGENCY
WATER DISTURBED AREAS TO PROVIDE DUST CONTROL	ALL DISTURBED AREAS OF SITE									AS NEEDED
INSPECT STRUCTURAL ELEMENTS DURING WET WEATHER AND COMPARE TO AS-BUILT PLANS (BY A PROFESSIONAL ENGINEER REPORTING TO THE OWNER)			X	X			X	X	X	ANNUALLY AND AT TURNOVER
MAKE ADJUSTMENTS OR REPLACEMENTS AS DETERMINED			X	X			X	X	X	AS NEEDED

* "AS NEEDED" MEANS WHEN SEDIMENT HAS ACCUMULATED TO A MAXIMUM OF ONE FOOT DEPTH

LONG TERM STORM WATER & BUDGET

1. THE CONDOMINIUM ASSOCIATION SHALL BE FIRST IN LINE OF RESPONSIBILITY FOR MAINTAINING ALL OF ROAD STORM SEWERS AND DETENTION BASINS
2. A CHAPTER 18 DRAINAGE DISTRICT WILL BE ESTABLISHED FOR THE ENTIRE PROJECT GIVING THE WCWRC STATUTORY RESPONSIBILITY FOR ULTIMATE RESPONSIBILITY

TASKS / COMPONENTS	PAVED AREAS	PERVIOUS AREAS	RIP-RAP	STORM DRAINAGE SYSTEM	SEDIMENT FOREBAYS	INFILTRATION BASINS	OUTLET CONTROL STR	INFILTRATION TRENCHES			SCHEDULE	ANNUAL COST
INSPECT FOR SEDIMENT ACCUMULATION	X		X	X	X	X	X	X			SEMI-ANUALLY/AS NEEDED*	$100.00
REMOVAL OF SEDIMENT ACCUMULATION	X		X	X	X	X	X	X			5-10 YRS/AS NEEDED*	$200.00
INSPECT FOR FLOATABLES AND DEBRIS				X	X	X	X				ANNUALLY	$100.00
CLEANING FOR FLOATABLES AND DEBRIS				X	X	X	X				ANNUALLY	$300.00
INSPECTION FOR EROSION		X	X			X		X			ANNUALLY/AFTER MAJOR STORMS	$100.00
REESTABLISH PERMANENT VEGETATION ON ERODED SLOPES		X				X					AS NEEDED	$300.00
CLEAN DRIVES AND PARKING LOTS	X										ANNUALLY	$500.00
MOWING		X						X			0-2 TIMES PER YEAR	$400.00
INSPECT STRUCTURAL ELEMENTS DURING WET WEATHER AND COMPARE TO AS-BUILT PLANS (BY A PROFESSIONAL ENGINEER REPORTING TO THE OWNER)			X	X	X	X	X	X			ANNUALLY	$100.00
MAKE ADJUSTMENTS OR REPLACEMENTS AS DETERMINED BY ANNUAL WET WEATHER INSPECTION			X	X	X	X	X	X			AS NEEDED	$100.00
KEEP RECORDS OF ALL INSPECTIONS AND MAINTENANCE ACTIVITIES AND REPORT TO PROPERTY OWNER											ANNUALLY	$50.00
KEEP RECORDS OF ALL COSTS FOR INSPECTIONS, MAINTENANCE AND REPAIRS. REPORT TO PROPERTY OWNER											ANNUALLY	$50.00
PROPERTY OWNER REVIEWS COST EFFECTIVENESS OF THE PREVENTATIVE MAINTENANCE PROGRAM AND MAKES NECESSARY ADJUSTMENTS											ANNUALLY	$50.00
OWNER TO HAVE A PROFESSIONAL ENGINEER CARRY OUT EMERGENCY INSPECTIONS UPON IDENTIFICATION OF SEVERE PROBLEMS											AS NEEDED	$150.00

* "AS NEEDED" MEANS WHEN SEDIMENT HAS ACCUMULATED TO A MAXIMUM OF ONE FOOT DEPTH

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

SOIL EROSION AND SEDIMENT CONTROL PLAN DETAILS

DATE
SEPTEMBER 13, 2016

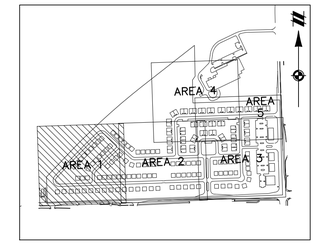
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 -- -- --
NO SCALE

DR. SK | CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 84

J:\13001886\DWG\PLAN SET\FINAL SITE PLAN\13001886SP-10-SE.DWG 11/16/2016 2:23 PM STEPHEN KESSEL



KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	EXISTING EASEMENT
	SECTION LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

LANDSCAPING PLAN – AREA 1

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBD

REVISIONS

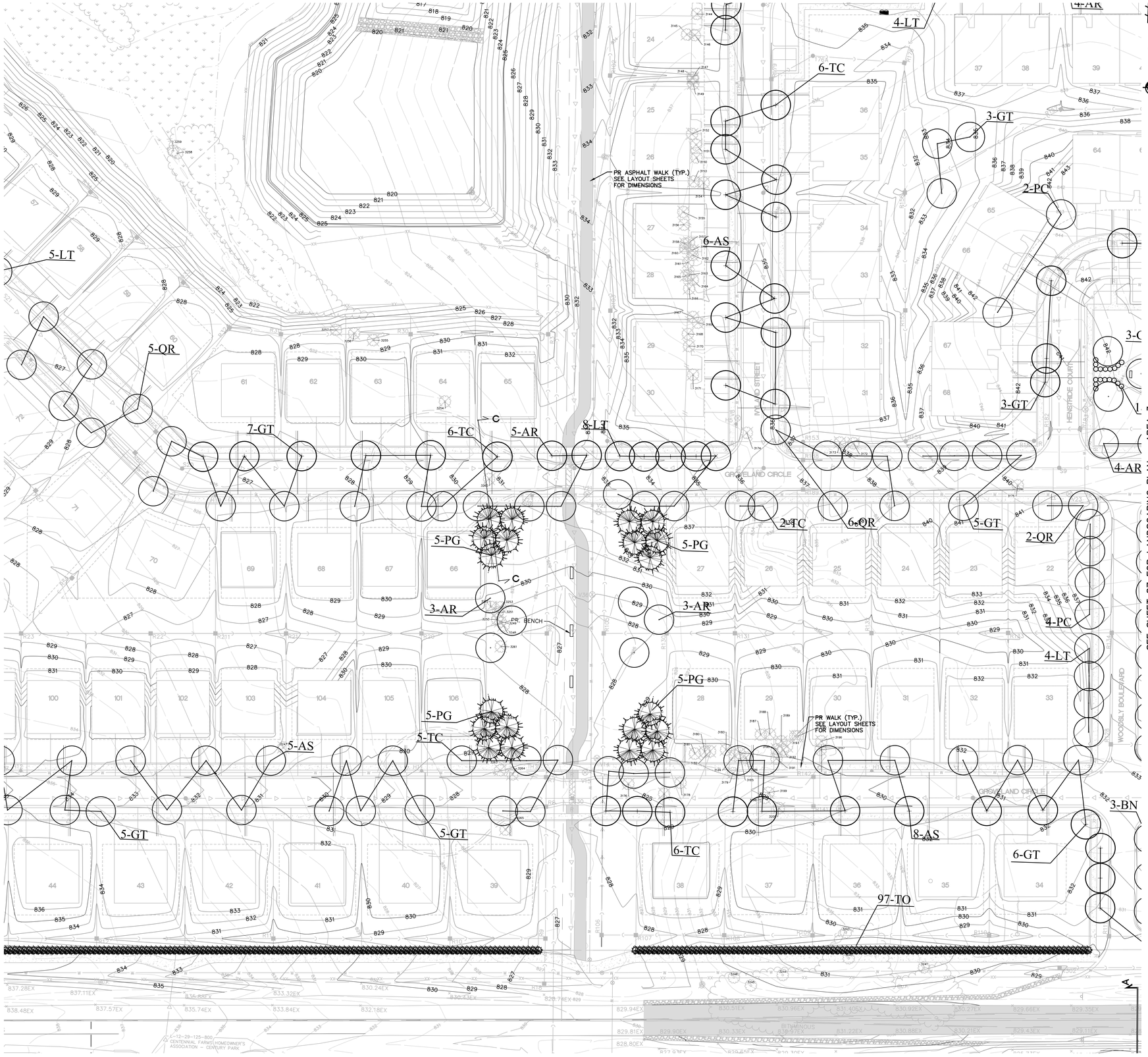
SCALE 0 20 40
1" = 40 FEET

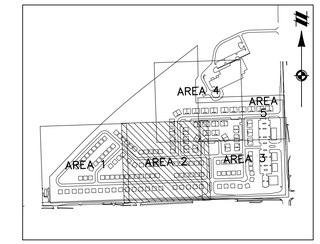
DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 85	

SEE SHEET 88 FOR LANDSCAPING PLAN – AREA 4

SEE SHEET 85 FOR LANDSCAPING PLAN – AREA 1

SEE SHEET 87 FOR LANDSCAPING PLAN – AREA 3





KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	EXISTING EASEMENT
	SECTION LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
S	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
S	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP–RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

LANDSCAPING PLAN – AREA 2

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM–SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM–SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

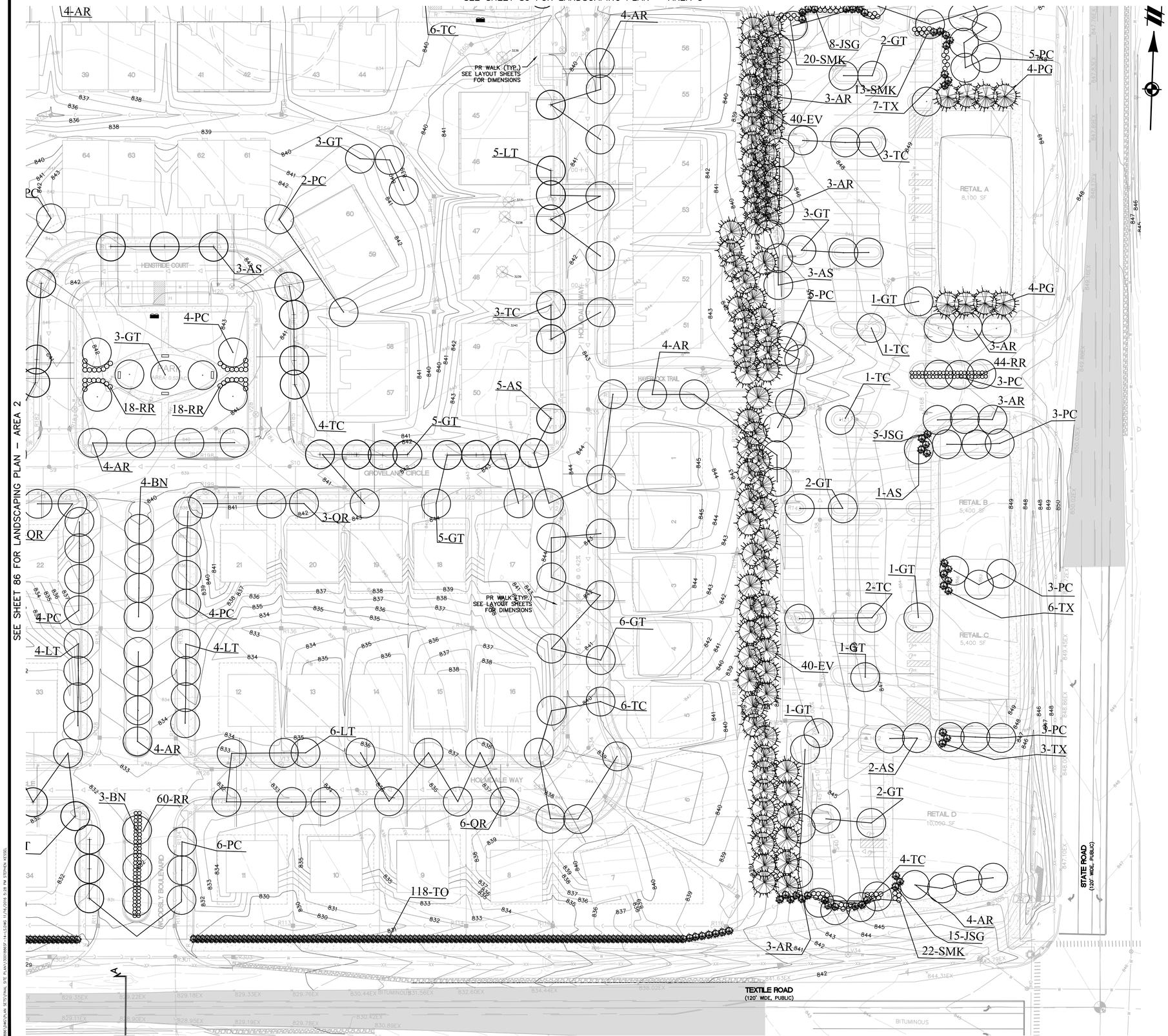
REVISIONS

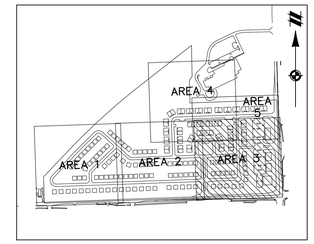
SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 86	

SEE SHEET 89 FOR LANDSCAPING PLAN – AREA 5

SEE SHEET 86 FOR LANDSCAPING PLAN – AREA 2





KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	EXISTING EASEMENT
	SECTION LINE
	BOUNDARY LINE
	EXISTING STORM
W	EXISTING WATER MAIN
	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
	PROPOSED STORM SEWER
	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
W	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP–RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

LANDSCAPING PLAN – AREA 3

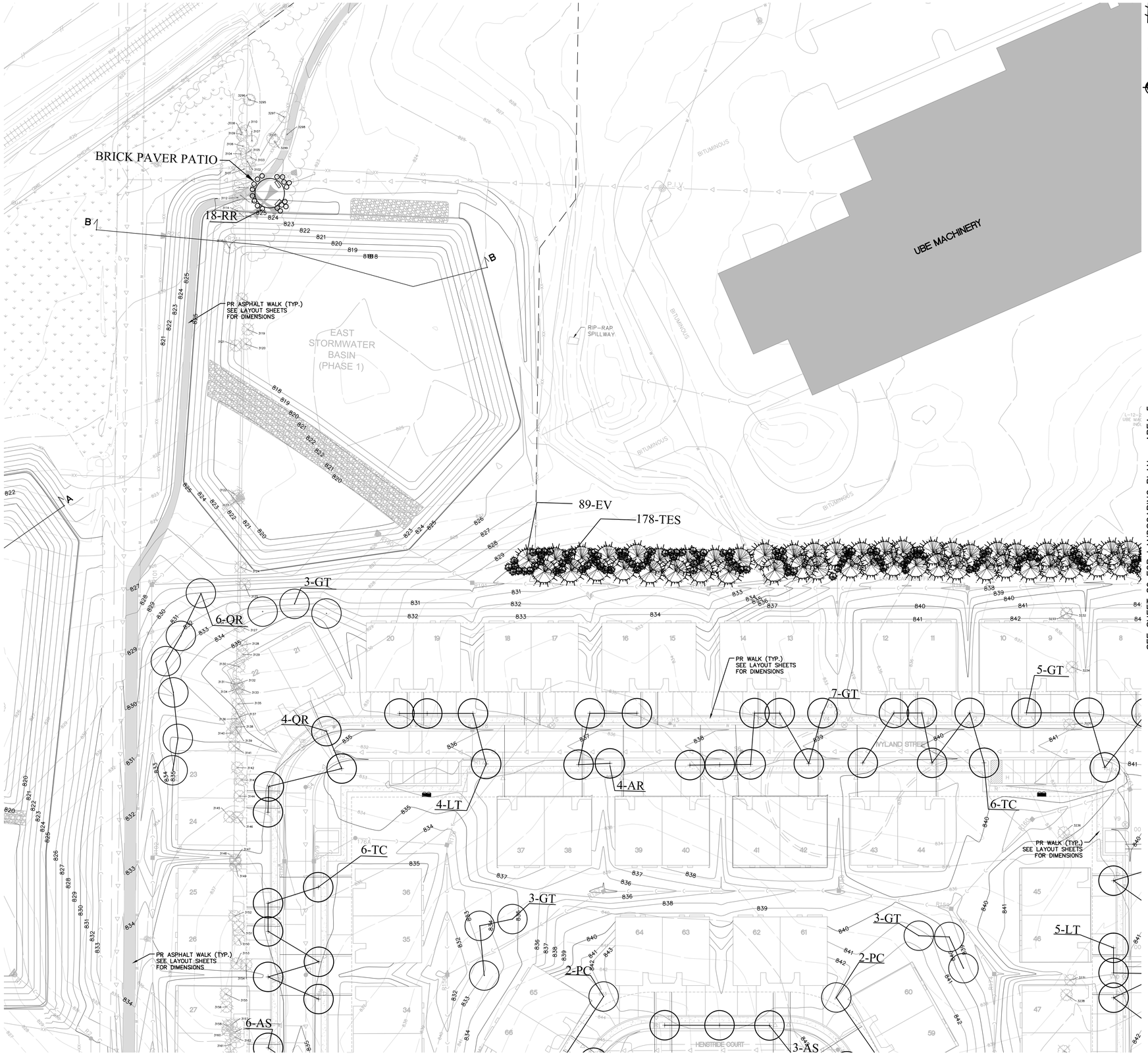
DATE
SEPTEMBER 13, 2016

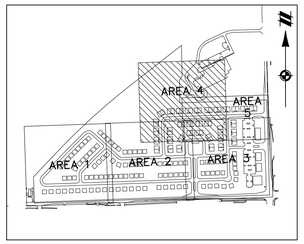
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM–SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM–SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBD

REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 87	





KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE	EXISTING OVERHEAD ELECTRICAL LINE
OHT	EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	EXISTING EASEMENT
	SECTION LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
S	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
S	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

LANDSCAPING PLAN – AREA 4

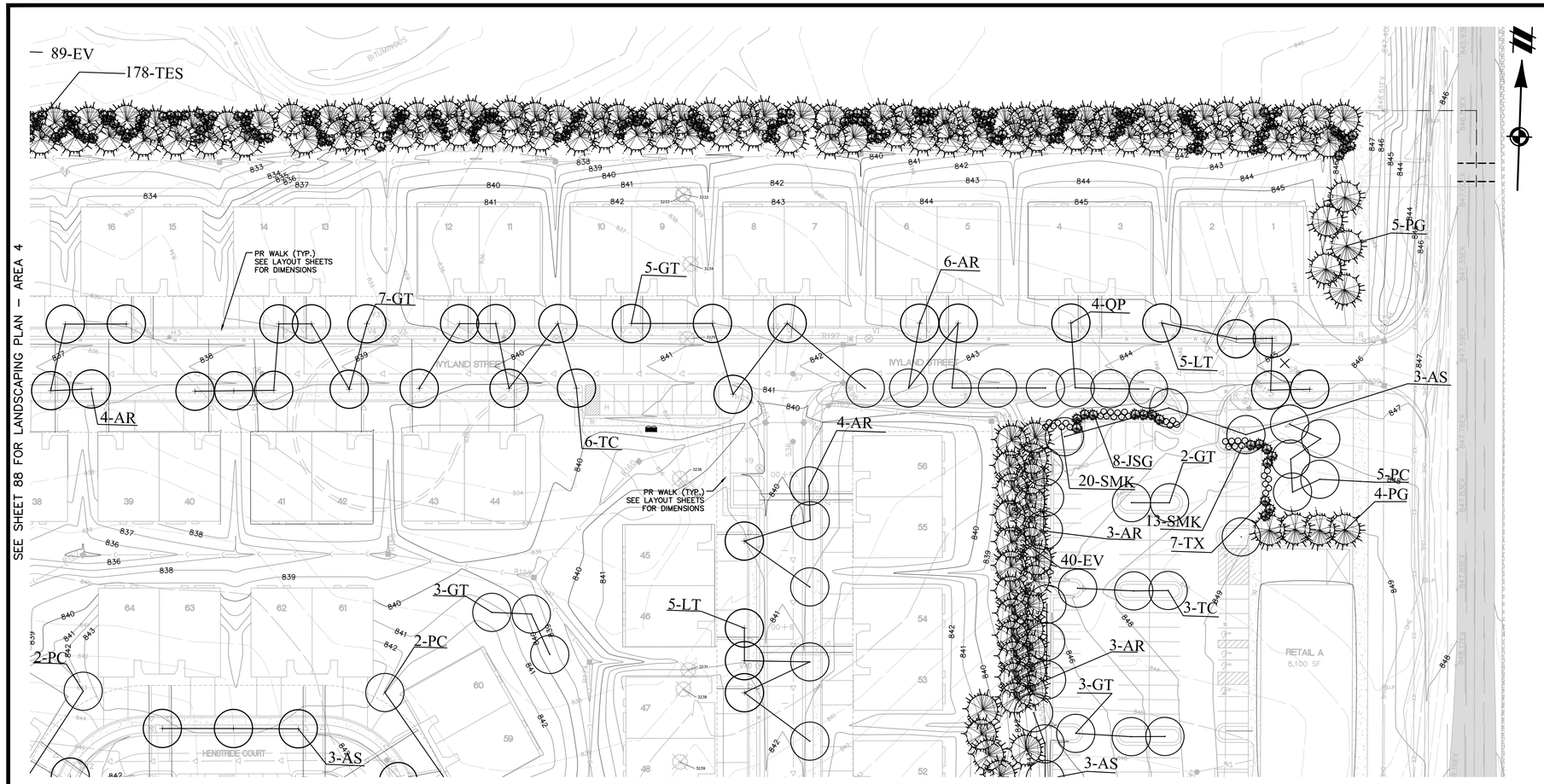
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

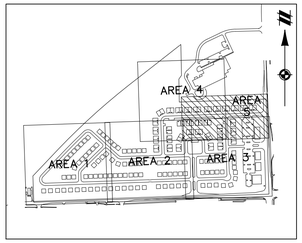
REVISIONS

SCALE 0 20 40
1" = 40 FEET

DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 88	



SEE SHEET 87 FOR LANDSCAPING PLAN – AREA 3



KEYMAP
1" = 800'

LEGEND

801	EXISTING 1' CONTOUR
800	EXISTING 5' CONTOUR
	EXISTING WETLAND LINE
OHE / OHT	EXISTING OVERHEAD ELECTRICAL LINE / EXISTING OVERHEAD TELEPHONE LINE
	EXISTING FENCE
	EXISTING CURB AND GUTTER
	EXISTING EASEMENT
	SECTION LINE
	BOUNDARY LINE
C	EXISTING STORM
W	EXISTING WATER MAIN
S	EXISTING SANITARY
G	EXISTING GAS
	EXISTING RAILROAD
	EXISTING FLOOD ZONE
801	PROPOSED 1' CONTOUR
800	PROPOSED 5' CONTOUR
C	PROPOSED STORM SEWER
S	PROPOSED SANITARY
W	PROPOSED WATER MAIN
	PROPOSED LOT
	PROPOSED SETBACK
	PROPOSED EASEMENT
	PROPOSED R.O.W.
	PROPOSED BACK/EDGE CURB
	PROPOSED CENTERLINE
	PROPOSED ELEVATION
W	EXISTING WELL
	EXISTING SIGN
U.P.	EXISTING UTILITY POLE
	EXISTING FIRE HYDRANT
CATV	EXISTING CABLE MARKER
T	EXISTING TELEPHONE RISER
	SECTION CORNER
	EXISTING SANITARY MANHOLE
	EXISTING CATCH BASIN/INLET
	EXISTING WATER MANHOLE
	EXISTING WETLAND
	EXISTING RIP-RAP
	PROPOSED CATCH BASIN/INLET
	PROPOSED OUTLET
	PROPOSED MANHOLE
	PROPOSED WATER VALVE IN WELL
	PROPOSED FIRE HYDRANT

PLANT LIST & LANDSCAPING

CANOPY TREES

QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
71	AR	ACER RUBRUM	RED MAPLE	2.5" CAL.	B & B
10	BN	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	2.5" CAL	B & B
40	AS	ACER SCCHARUM 'LEGACY'	LEGACY SUGAR MAPLE	2.5" CAL.	B & B
57	PC	PYRUS CALLERYANA 'CHANTICLEER'	CHANTICLEER PEAR	2.5" CAL.	B & B
4	QP	QUERCUS PALUSTRIS	PIN OAK	2.5" CAL.	B & B
45	QR	QUERCUS RUBRUM	RED OAK	2.5" CAL.	B & B
83	TC	TILIA CORDATA	LITTLELEAF LINDEN	2.5" CAL.	B & B
56	LT	LIRIODENDRON TULIPIFERA	TULIP TREE	2.5" CAL.	B & B
92	GT	GLEDITSIA TRIACANTHOS VINERMIS	HONEY LOCUST	2.5" CAL.	B & B

EVERGREEN TREES

QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
33	PG	PICEA GLUACA	WHITE SPRUCE	6–7' HT.	B&B
340	EV	EVERGREEN TREES (SEE NOTE 4)	MIX OF SPECIES	6–7' HT.	B&B
≤120		PICEA PUNGENS	COLORADO SPRUCE		
≤120		PICEA PUNGENS 'GLUACA'	BLUE SPRUCE		
≤120		PICEA ABIES	NORWAY SPRUCE		
≤120		PINUS STROBUS	WHITE PINE		
≤120		PINUS NIGRA	AUSTRIAN PINE		
178	TES	NARROW EVERGREEN TREES (SEE NOTE 4)	MIX OF SPECIES	4'HT.	5 GAL CONT.
≤60		THUJA OCCIDENTALIS 'EMERALD GREEN'	EMERALD GREEN ARBORVITAE		
≤60		THUJA PLICATA ' GREEN GIANT'	GREEN GIANT WESTERN CEDAR		
≤60		JUNIPERUS VIRGINIANA 'BURKII'	BURK'S EASTERN CEDAR		
≤60		JUNIPERUS SCOPULORUM 'SUTHERLAND'	SUTHERLAND COLORADO RED CEDAR		
516	TO	THUJA OCCIDENTALIS 'EMERALD'	EMERALD ARBORVITAE	4'HT.	5 GAL CONT.

SHRUBS

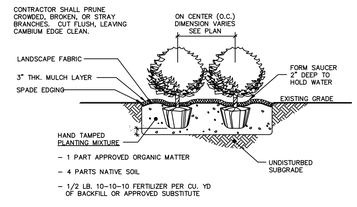
QTY	KEY	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
28	JSG	JUNIPERUS 'SEA GREEN'	SEA GREEN JUNIPER	24" HT.	5 GAL CONT.
16	TX	TAXUS X MEDIA 'WARDII'	WARD'S YEW	24" HT.	B&B
83	SMK	SYRINGA 'MISS KIM'	MISS KIM LILAC	24" HT.	5 GAL CONT.
198	RR	ROSA RADRAZZ	KNOCKOUT ROSE	24" O.C.	CONT.

OVERALL LANDSCAPING REQUIREMENT CALCULATIONS

TYPE	REQUIREMENT	CALCULATION	AMOUNT REQUIRED	AMOUNT PROPOSED
CANOPY TREES	1/8 PARKING SPACES	159 SPACES/8	20 TREES	26 TREES
STREET TREES	1/50LF RES. FRONTAGE	17170 LF/50	344 TREES	344 TREES RESIDENTIAL FRONTAGE
LANDSCAPE SCREEN (INTERNAL RESIDENTIAL & COMMERCIAL)		814 LF/10	82 TRESS	91 TREES
LANDSCAPE SCREEN (NORTHERN BOUNDARY)	1EV TREE/10LF 1 NARROW EV TREE/5LF	1160 LF/10 1160 LF/5	117 TREES 232 TREES	145 TREES 0 TREES

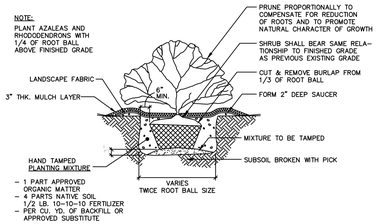
LANDSCAPE NOTES

1. CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED SITE ELEMENTS AND NOTIFY ARCHITECT OF ANY DISCREPANCIES. SURVEY DATA OF EXISTING CONDITIONS WAS SUPPLIED BY OTHERS.
2. CONTRACTOR SHALL LOCATE ALL EXISTING UNDERGROUND UTILITIES AND NOTIFY ARCHITECT OF ANY CONFLICTS. CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING IN THE VICINITY OF UNDERGROUND UTILITIES.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED LANDSCAPE AND IRRIGATION PERMITS.
4. EV EVERGREEN TREES AND TES SHALL BE A MIX OF SPECIES LISTED WITH NO SINGLE SPECIES EXCEEDING ⅓ OF THE TOTAL AND PLANTED IN GROUPINGS WITH AVERAGE OF 5 TO 7 SPECIES TYPE PER GROUPING.
5. ANTICIPATED PLANTING SCHEDULE: FALL 2017 (BETWEEN SEPT. 1 AND OCT. 31).
6. MAINTENANCE SCHEDULE: LANDSCAPING IS TO BE KEPT IN A NEAT, HEALTHY, RELATIVELY WEED FREE CONDITION IN ACCORDANCE WITH CURRENT INDUSTRY STANDARDS AND PITTSFIELD TOWNSHIP CODE.
   - MULCH: AT INSTALLATION AND AS NEEDED THEREAFTER
   - WEEDS: AT INSTALLATION AND AS NEEDED THEREAFTER
   - PRUNING: AT INSTALLATION AND AS NEEDED THEREAFTER
   - FERTILIZER: AT INSTALLATION AND AS NEEDED THEREAFTER
   - PLANT MATERIAL: DEAD OR DAMAGED (OVER 50%) TO BE REPLACED BY THE END OF THE GROWING SEASON OR THE END OF THE NEXT SEASON IF DEAD/DAMAGED AFTER NOVEMBER 1.
   - MOWING: AS NEEDED
7. EXISTING VEGETATION TO REMAIN ARE INDICATED ON SHEETS 2–10. NO CREDIT FOR EXISTING VEGETATION TO REMAIN HAS BEEN APPLIED TO THE ABOVE REQUIREMENTS.



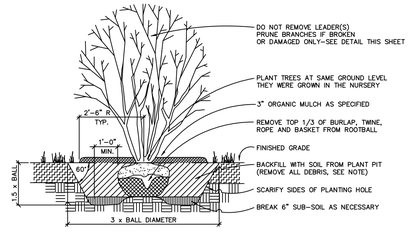
CONTAINER SHRUB PLANTING DETAIL

SCALE: NTS



BALLED AND BURLAPPED SHRUB PLANTING DETAIL

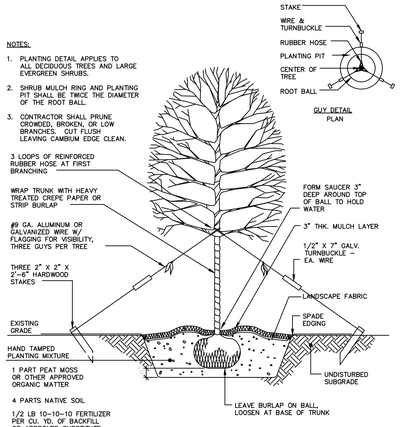
SCALE: NTS



GENERAL NOTES:
IF ROOTBALL IS WRAPPED IN NON–BIODEGRADEABLE BURLAP, REMOVE ENTIRE WRAP AFTER PLACED IN PIT.
WHEN BACKFILLING PLANT PIT, PLACE PLANTING SOIL IN TWO LIFTS. AFTER FIRST LIFT, PUDDLE SOIL IN WITH WATER TO REMOVE ALL AIR POCKETS. PLACE SECOND LIFT AND REPEAT. CONTINUE TO PUDDLE AND FILL AS NECCESSARY.

MULTI-STEMMED TREE PLANTING DETAIL

SCALE: NTS



DECIDUOUS CANOPY TREE PLANTING DETAIL (2" cal. or greater)

SCALE: NTS

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

LANDSCAPING PLAN – AREA 5

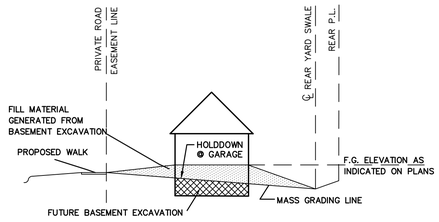
DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM–SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM–SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

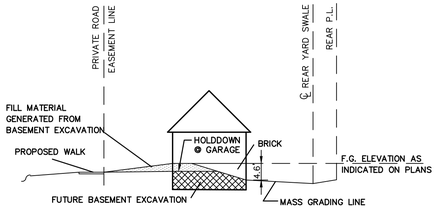
SCALE 0 20 40
1" = 40 FEET

DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 89



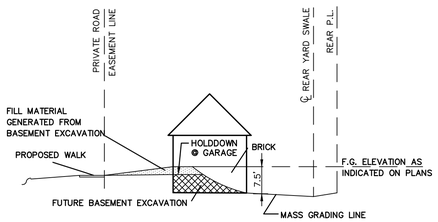
TYPICAL LOT MASS GRADING SCHEMATIC

NO SCALE



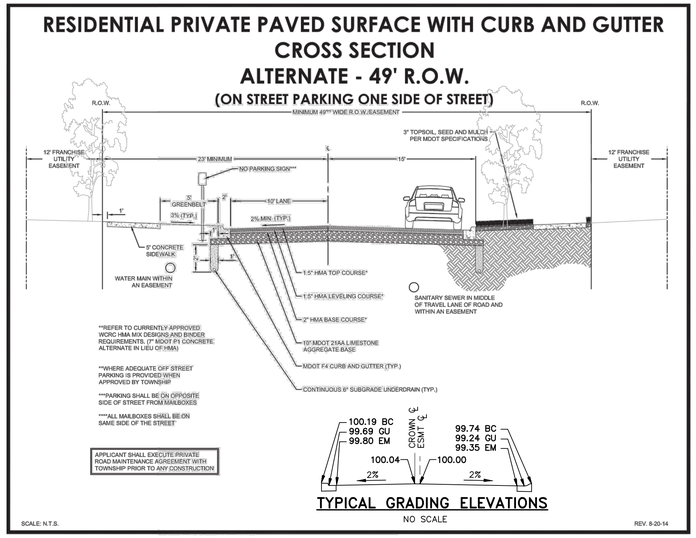
VIEW OUT (VO) MASS GRADING SCHEMATIC

NO SCALE



WALK OUT (WO) MASS GRADING SCHEMATIC

NO SCALE

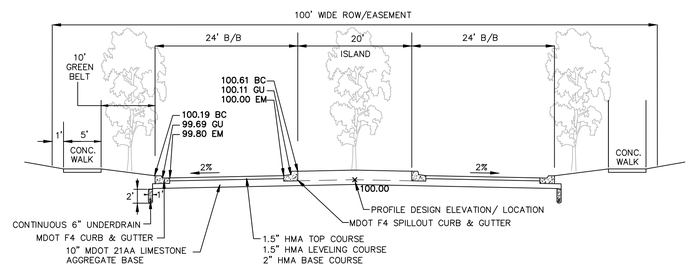


TYPICAL GRADING ELEVATIONS

NO SCALE

TYPICAL 49-FT PRIVATE ROAD CROSS SECTION

NO SCALE



TYPICAL 100-FT WIDE BOULEVARD CROSS SECTION

NO SCALE

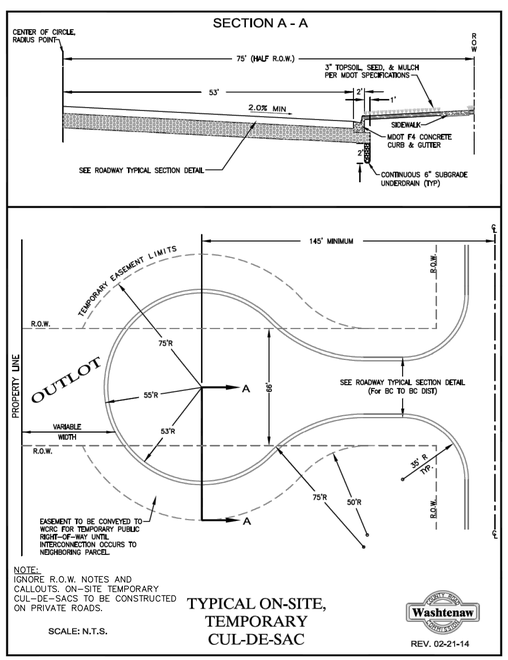
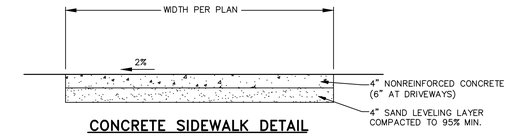
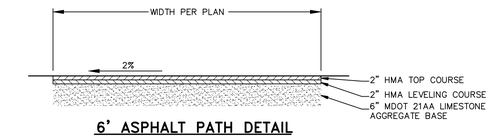


Figure 7: Typical On-site Temporary Cul-de-sac



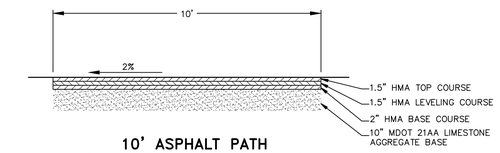
CONCRETE SIDEWALK DETAIL

NO SCALE



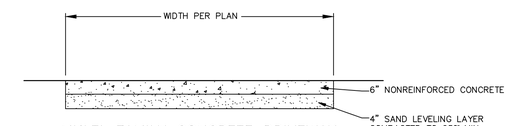
6' ASPHALT PATH DETAIL
8' ASPHALT PATH DETAIL
10' ASPHALT PATH (OUTSIDE SEWER AND WATER)

NO SCALE



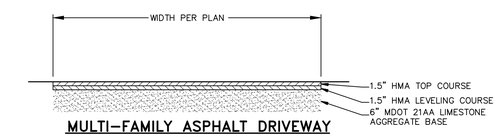
10' ASPHALT PATH (ALONG SEWER AND WATER)

NO SCALE



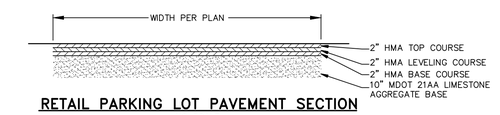
MULTI-FAMILY CONCRETE DRIVEWAY

NO SCALE



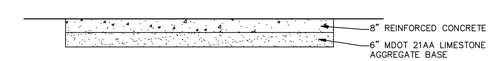
MULTI-FAMILY ASPHALT DRIVEWAY

NO SCALE



RETAIL PARKING LOT PAVEMENT SECTION

NO SCALE



RETAIL CONCRETE PAVEMENT SECTION (DUMPSTER DRIVEWAYS)

NO SCALE

R5-1 SIGN DETAIL

NO SCALE

SP-2 SIGN DETAIL

NO SCALE

R1-1 SIGN DETAIL

NO SCALE

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN
STANDARD DETAILS

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

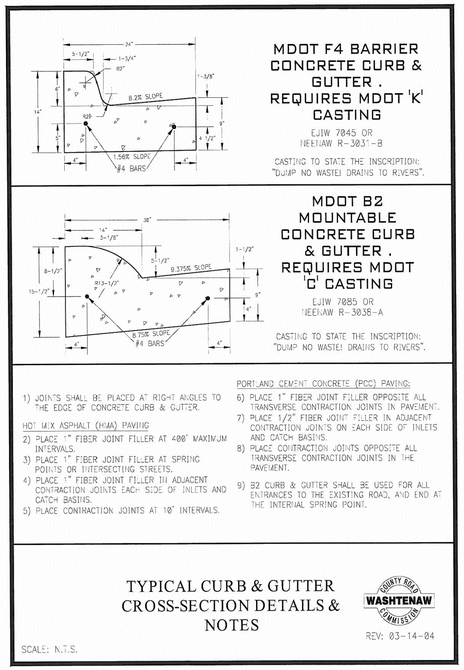
REVISIONS

SCALE 0 — — — —
NO SCALE

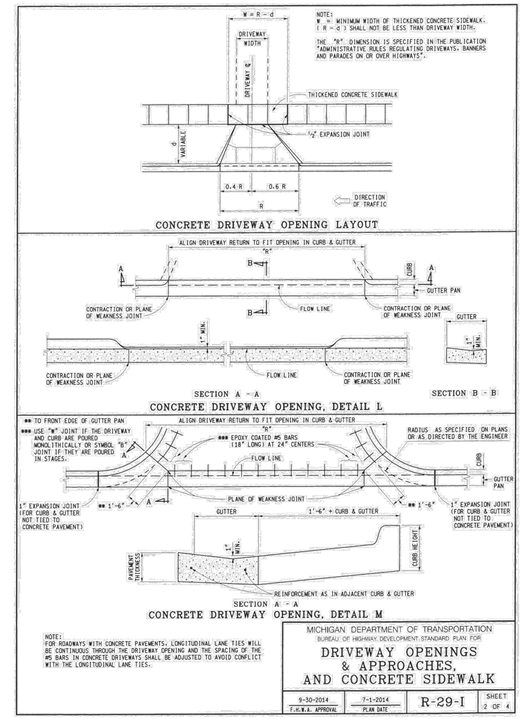
DR. SK	CH. SS
P.M. MB	
BOOK	
JOB 13001886.10	
SHEET NO. 90	

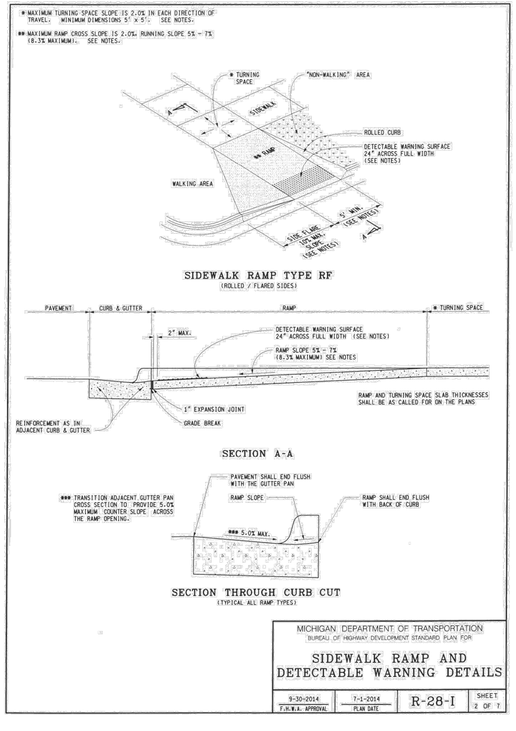
BOARD–ON–BOARD FENCE TYPICAL DETAIL

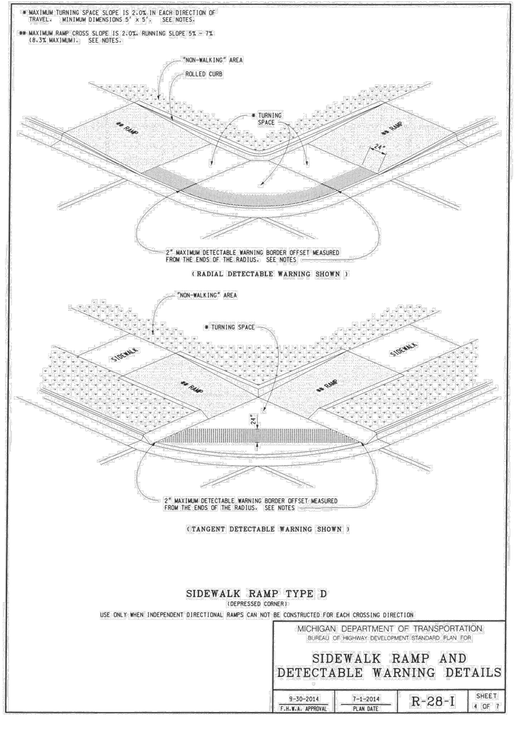
PARK BENCH TYPICAL DETAIL

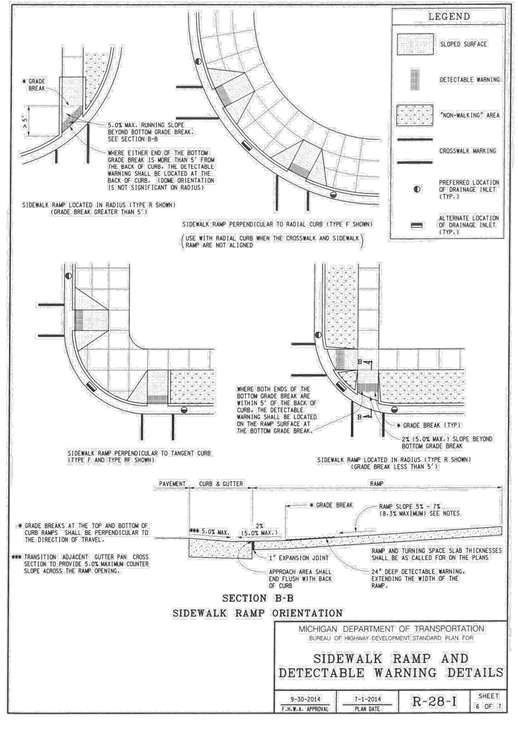


MDOT TYPE F4 CURB & GUTTER









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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC
INGLEWOOD PARK
FINAL SITE PLAN

STANDARD DETAILS

DATE
SEPTEMBER 13, 2016

11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

SCALE 0 -- -- NO SCALE
DR. SK CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO. 91

SANITARY SEWER STRUCTURE SCHEDULE

MH	Casting	Rim	Pipe Out Inv Out	Pipe Out Dir	Pipe In Inv In	Pipe In Dir	Pipe In Inv In	Pipe In Dir	Pipe In Inv In	Pipe In Dir	Depth Rim-Inv	Diameter	Phase
WEST SIDE OF S30													
S45	EJIW 1040Z-AGS	832.15	816.85	10" E	816.95	10" W					15.30	4'	Phase 2
S46	EJIW 1040Z-AGS	837.29	818.30	10" E	818.40	10" W					18.99	4'	Phase 2
S47	EJIW 1040Z-AGS	835.35	819.75	10" E	819.85	10" W					15.60	4'	Phase 2
S48	EJIW 1040Z-AGS	832.88	822.35	10" E							10.53	4'	Phase 2
EAST SIDE OF S30													
S30	EJIW 1040Z-AGS	827.43	811.02	21" S	815.71	10" E	815.37	10" W	811.02	21" N	16.41	5' Doghouse	Phase 1
S31	EJIW 1040Z-AGS	830.74	819.11	10" W	819.21	10" E					11.63	4'	Phase 1
S32	EJIW 1040Z-AGS	834.51	822.61	10" W	823.51	10" E					11.90	4'	Phase 1
S33	EJIW 1040Z-AGS	838.04	824.20	10" W	824.30	10" NE					13.84	4'	Phase 1
S34	EJIW 1040Z-AGS	839.09	824.52	10" SW	824.62	10" N					14.57	4'	Phase 1
S35	EJIW 1040Z-AGS	843.52	825.85	10" S	825.95	10" N	831.95	10" E			17.67	5'	Phase 1
S36	EJIW 1040Z-AGS	839.58	829.24	10" S							10.34	4'	Phase 1
S37	EJIW 1040Z-AGS	845.04	832.79	10" W	832.89	10" S	833.79	10" NE			12.25	4'	Phase 1
S38	EJIW 1040Z-AGS	844.58	833.29	10" N	833.39	10" S	833.29	6" E			11.29	4' Monitoring	Phase 4
S39	EJIW 1040Z-AGS	843.76	833.99	10" N	834.09	10" S	833.99	6" E			9.77	4' Monitoring	Phase 4
S40	EJIW 1040Z-AGS	844.14	835.54	10" N	835.54	6" E					8.60	4' Monitoring	Phase 4
S41	EJIW 1040Z-AGS	848.40	837.14	10" SW	837.14	6" E					11.26	4' Monitoring	Phase 4
WEST SIDE OF S1													
S20	EJIW 1040Z-AGS	826.61	813.99	10" E	814.09	10" NW					12.63	4'	Phase 2
S21	EJIW 1040Z-AGS	827.77	814.98	10" SE	815.08	10" NW	816.38	10" SW			12.79	4'	Phase 2
S22	EJIW 1040Z-AGS	829.96	816.00	10" SE	816.10	10" W					13.96	4'	Phase 2
S23	EJIW 1040Z-AGS	830.52	816.38	10" E	816.48	10" SW					14.14	4'	Phase 2
S24	EJIW 1040Z-AGS	832.86	817.46	10" NE	817.56	10" SW					15.40	4'	Phase 2
S25	EJIW 1040Z-AGS	830.88	820.11	10" NE							10.77	4'	Phase 2
S26	EJIW 1040Z-AGS	831.90	819.60	10" NE	819.70	10" SW					12.30	4'	Phase 2
S27	EJIW 1040Z-AGS	833.27	822.50	10" NE							10.77	4'	Phase 2
EAST SIDE OF S1													
S1	EJIW 1040Z-AGS	832.31	811.29	21" S	818.30	10" E	812.59	10" W	811.29	21" N	21.02	5' Doghouse	Phase 1
S2	EJIW 1040Z-AGS	836.36	818.98	10" W	819.08	10" N	823.03	10" E			17.38	5'	Phase 1
S3	EJIW 1040Z-AGS	834.64	821.58	10" S	821.68	10" N					13.06	4'	Phase 1
S4	EJIW 1040Z-AGS	834.51	822.35	10" S	822.45	10" NE					12.16	4'	Phase 1
S5	EJIW 1040Z-AGS	834.97	822.84	10" SW	822.94	10" E					12.13	4'	Phase 1
S6	EJIW 1040Z-AGS	838.38	826.38	10" W	826.48	10" E					12.00	4'	Phase 1
S7	EJIW 1040Z-AGS	841.85	829.96	10" W	830.06	10" E					11.89	4'	Phase 1
S8	EJIW 1040Z-AGS	845.26	833.37	10" W							11.90	4'	Phase 1
S9	EJIW 1040Z-AGS	840.57	827.04	10" W	827.64	10" E	827.14	10" N			13.53	4'	Phase 1
S10	EJIW 1040Z-AGS	840.52	828.52	10" W	828.62	10" E					12.00	4'	Phase 1
S11	EJIW 1040Z-AGS	843.51	831.52	10" W							11.99	4'	Phase 1
S12	EJIW 1040Z-AGS	842.23	827.85	10" S	827.95	10" E					14.38	4'	Phase 3
S13	EJIW 1040Z-AGS	842.09	828.79	10" W	828.89	10" S					13.30	4'	Phase 3
S14	EJIW 1040Z-AGS	841.25	829.57	10" N							11.68	4'	Phase 3

WEST STORM STRUCTURE SCHEDULE

STORM STRUCTURE SCHEDULE

Structure No.	Type	Casting	Sump	Rim	Pipe Out Inv Out	Pipe Out Diam.	Pipe Out Dir	Pipe In Inv In	Pipe In Diam.	Pipe In Dir	Pipe In Inv In	Pipe In Diam.	Pipe In Dir	Pipe In Inv In	Pipe In Diam.	Pipe In Dir	Depth	Diameter	Phase
WEST STORM WATER BASIN																			
R70	ES		N	N /A	819.62	15 in	E	-	-	-	-	-	-	-	-	-	N /A	N / A	Phase 2
R71	OCS		N	824.00	819.74	15 in	W	-	-	-	-	-	-	-	-	-	4.26	N / A	Phase 2
R65	CB	EJIW-7045	Y	826.24	821.90	18 in	NE	822.10	15 in	SW	-	-	-	-	-	-	6.34		Phase 2
R66	INLET	EJIW-7045	N	826.30	822.18	15 in	NE	-	-	-	-	-	-	-	-	-	4.12		Phase 2
R60	CB	EJIW-7045	Y	827.82	821.92	24 in	NW	822.02	24 in	SW	-	-	-	-	-	-	7.90		Phase 2
R61	CB	EJIW-7045	Y	827.88	822.07	24 in	NE	822.17	24 in	S	-	-	-	-	-	-	7.81		Phase 2
R62	CB	EJIW-7045	Y	826.87	822.23	24 in	N	822.73	15 in	SE	-	-	-	-	-	-	6.64		Phase 2
R63	INLET	EJIW-7045	N	826.93	822.81	15 in	NW	-	-	-	-	-	-	-	-	-	4.12		Phase 2
R59	INLET	EJIW-1040Z-N	N	826.84	822.56	18 in	SW	-	-	-	-	-	-	-	-	-	4.28		Phase 2
R52	MH	EJIW-1040Z-B	N	830.29	825.78	12 in	SE	825.88	12 in	SW	-	-	-	-	-	-	4.51		Phase 2
R54	CB	EJIW-7045	Y	830.43	826.21	12 in	NE	826.31	12 in	SE	-	-	-	-	-	-	6.21		Phase 2
R55	INLET	EJIW-7045	N	830.49	826.42	12 in	NW	-	-	-	-	-	-	-	-	-	4.06		Phase 2
R49	CB	EJIW-7045	Y	832.93	828.56	12 in	NE	828.76	12 in	S	-	-	-	-	-	-	6.38		Phase 2
R50	INLET	EJIW-7045	N	832.87	828.87	12 in	N	-	-	-	-	-	-	-	-	-	4.01		Phase 2
R45	INLET	EJIW-1040Z-N	N	833.37	827.64	12 in	NW	-	-	-	-	-	-	-	-	-	5.73		Phase 2
R30	CB	EJIW-1040Z-N	Y	828.36	820.32	36 in	E	820.32	36 in	W	-	-	-	-	-	-	10.04	5'	Phase 2
R31	CB	EJIW-1040Z-N	Y	825.98	820.43	36 in	E	820.43	36 in	W	-	-	-	-	-	-	7.55	5'	Phase 2
R32	CB	EJIW-1040Z-N	Y	826.86	820.47	36 in	E	820.47	36 in	NW	821.62	18 in	SW	-	-	-	8.38	5'	Phase 2
R33	CB	EJIW-1040Z-N	Y	826.75	820.53	36 in	SE	820.53	36 in	NW	-	-	-	-	-	-	8.22	5'	Phase 2
R333	CB	EJIW-1040Z-N	Y	826.68	820.58	36 in	SE	820.58	36 in	NW	-	-	-	-	-	-	8.09	5'	Phase 2
R34	CB	EJIW-1040Z-N	Y	826.68	820.64	36 in	SE	820.64	36 in	NW	-	-	-	-	-	-	8.04	5'	Phase 2
R35	CB	EJIW-1040Z-N	Y	827.40	820.75	36 in	SE	820.75	36 in	NW	-	-	-	-	-	-	8.65	5'	Phase 2
R36	CB	EJIW-1040Z-N	Y	828.66	820.82	36 in	SE	820.82	36 in	SW	-	-	-	-	-	-	9.84	6'	Phase 2
R37	MH	EJIW-1040Z-B	N	828.67	820.90	36 in	NE	820.90	36 in	SE	824.40	12 in	NW	-	-	-	7.76	6'	Phase 2
R38	CB	EJIW-7045	Y	828.78	820.96	36 in	NW	821.76	24 in	SW	821.76	24 in	SE	-	-	-	9.82	6'	Phase 2
R39	CB	EJIW-7045	Y	828.84	821.85	24 in	NE	823.00	24 in	SW	-	-	-	-	-	-	8.99		Phase 2
R40	CB	EJIW-1040Z-N	Y	828.18	823.14	24 in	NE	823.14	24 in	SW	-	-	-	-	-	-	7.04		Phase 2
R40A	CB	EJIW-1040Z-N	Y	828.04	823.23	24 in	NE	823.23	24 in	SW	-	-	-	-	-	-	6.81		Phase 2
R41	CB	EJIW-1040Z-N	Y	829.14	823.33	24 in	NE	823.33	24 in	SW	-	-	-	-	-	-	7.81		Phase 2
R42	CB	EJIW-1040Z-N	Y	830.24	823.42	24 in	NE	823.42	24 in	SW	-	-	-	-	-	-	8.82		Phase 2
R43	CB	EJIW-1040Z-N	Y	829.91	823.61	24 in	NE	823.71	24 in	SW	-	-	-	-	-	-	8.30		Phase 2
R44	CB	EJIW-1040Z-N	Y	828.70	823.90	24 in	NE	824.30	18 in	SW	824.60	12 in	SE	-	-	-	6.80		Phase 2
R46	CB	EJIW-1040Z-N	Y	830.09	824.58	18 in	NE	825.48	18 in	NW	825.88	12 in	SW	-	-	-	7.51		Phase 2
R47	CB	EJIW-7045	Y	830.39	825.78	18 in	SE	826.13	15 in	NW	-	-	-	-	-	-	6.61		Phase 2
R48	INLET	EJIW-7045	N	830.33	826.21	15 in	SE	-	-	-	-	-	-	-	-	-	4.12		Phase 2
R26	CB	EJIW-1040Z-N	Y	827.49	823.29	12 in	S	823.39	12 in	NE	-	-	-	-	-	-	6.20		Phase 2
R27	INLET	EJIW-1040Z-N	N	827.66	823.63	12 in	SW	-	-	-	-	-	-	-	-	-	4.03		Phase 2
R20	CB	EJIW-1040Z-N	Y	827.64	820.46	36 in	E	820.46	36 in	W	-	-	-	-	-	-	9.18	5'	Phase 2
R21	CB	EJIW-1040Z-N	Y	825.64	820.58	36 in	E	821.03	24 in	W	-	-	-	-	-	-	7.06	5'	Phase 2
R211	CB	EJIW-1040Z-N	Y	826.00	821.13	24 in	E	821.13	24 in	W	-	-	-	-	-	-	6.87		Phase 2
R22	CB	EJIW-1040Z-N	Y	826.16	821.22	24 in	E	821.72	18 in	W	-	-	-	-	-	-	6.93		Phase 2
R23	CB	EJIW-1040Z-N	Y	828.36	822.00	18 in	E	822.50	12 in	W	822.40	18 in	NE	822.90	12 in	N	8.36	5'	Phase 2
R24	CB	EJIW-1040Z-N	Y	829.85	825.80	12 in	E	825.80	12 in	W	-	-	-	-	-	-	6.05		Phase 2
R25	INLET	EJIW-1040Z-N	N	831.25	827.17	12 in	E	-	-	-	-	-	-	-	-	-	4.08		Phase 2
R18	INLET	EJIW-1040Z-N	N	826.39	822.22	15 in	N	-	-	-	-	-	-	-	-	-	4.17		Phase 2
R1	ES		N	N / A	820.00	48 in	SE	-	-	-	-	-	-	-	-	-	N / A	N / A	Phase 2
R2	MH	EJIW-1040Z-B	N	830.01	820.06	48 in	NW	820.06	48 in	S	-	-	-	-	-	-	9.95	8'	Phase 2
R3	CB	EJIW-1040Z-N	Y	829.40	820.10	48 in	N	820.10	36 in	S	820.20	36 in	W	-	-	-	11.30	8'	Phase 2
R6	CB	EJIW-1040Z-N	Y	826.57	820.36	36 in	N	820.94	29x45	S	820.36	36 in	W	-	-	-	8.21	6'	Phase 2
R7	CB	EJIW-7045	Y	827.21	821.06	29x45	N	821.31	24 in	S	-	-	-	-	-	-	8.15	5'	Phase 2
R8	CB	EJIW-7045	Y	827.15	821.37	24 in	N	821.62	18 in	S	-	-	-	-	-	-	7.78		Phase 2
R9	CB	EJIW-1040Z-N	Y	826.61	821.90	18 in	N	822.45	15 in	W	822.10	15 in	S	-	-	-	6.71		Phase 2
R10	CB	EJIW-1040Z-N	Y	827.22	822.71	15 in	E	822.91	12 in	W	-	-	-	-	-	-	6.51		Phase 2
R11	CB	EJIW-1040Z-N	Y	829.13	823.57	12 in	E	823.57	12 in	W	-	-	-	-	-	-	7.56		Phase 2
R12	CB	EJIW-1040Z-N	Y	832.13	824.23	12 in	E	824.23	12 in	W	-	-	-	-	-	-	9.90		Phase 2
R13	CB	EJIW-1040Z-N	Y	835.13	824.89	12 in	E	824.89	12 in	W	-	-	-	-	-	-	12.24		Phase 2
R14	CB	EJIW-1040Z-N	Y	834.70	825.55	12 in	E	825.55	12 in	W	-	-	-	-	-	-	11.16		Phase 2
R15	CB	EJIW-1040Z-N	Y	834.70	826.21	12 in	E	826.21	12 in	W	-	-	-	-	-	-	10.50		Phase 2
R16	CB	EJIW-1040Z-N	Y	833.20	826.87	12 in	E	826.87	12 in	W	-	-	-	-	-	-	8.33		Phase 2
R17	INLET	EJIW-1040Z-N	N	831.59	827.53	12 in	E	-	-	-	-	-	-	-	-	-	4.06		Phase 2

SEE NOTE 2 FOR SUMP DEPTH

NOTES:

1 ALL STORM INLETS ARE 2-FOOT IN DIAMETER AND ALL OTHER STORM STRUCTURES ARE 4-FOOT IN DIAMETER UNLESS OTHERWISE NOTED (SEE SCHEDULES ABOVE AND RIGHT).
2 ALL CATCH BASIN SUMPS ARE 2-FEET DEEP UNLESS OTHERWISE NOTED.

EAST STORM STRUCTURE SCHEDULE

STORM STRUCTURE SCHEDULE

Structure No.	Type	Casting	Sump	Rim	Pipe Out Inv Out	Pipe Out Diam.	Pipe Out Dir	Pipe In Inv In	Pipe In Diam.	Pipe In Dir	Pipe In Inv In	Pipe In Diam.	Pipe In Dir	Pipe In Inv In	Pipe In Diam.	Pipe In Dir	Depth	Diameter	Phase
EAST STORM BASIN NETWORK 1																			
R210	ES		N	N / A	819.67	15 in	E	-	-	-	-	-	-	-	-	-	N / A	N / A	Phase 1
R211	OCS		N	824.00	819.76	15 in	W	-	-	-	-	-	-	-	-	-	4.24		Phase1
R190	ES		N	N /A	821.86	15 in	SE	-	-	E	-	-	-	-	-	-	N /A	N / A	Phase 1
R191	CB	EJIW-1040Z-N	Y	829.45	822.87	15 in	W	823.07	12 in	E	-	-	-	-	-	-	8.58		Phase 1
R192	CB	EJIW-1040Z-N	Y	831.46	827.09	12 in	W	827.19	12 in	E	-	-	-	-	-	-	6.37		Phase 1
R193	CB	EJIW-1040Z-N	Y	837.54	833.24	12 in	W	833.34	12 in	E	-	-	-	-	-	-	6.30		Phase 1
R194	CB	EJIW-1040Z-N	Y	839.54	835.34	12 in	W	835.44	12 in	E	-	-	-	-	-	-	6.20		Phase 1
R195	INLET	EJIW-1040Z-N	N	841.70	837.44	12 in	W	-	-	-	-	-	-	-	-	-	4.27		Phase 1
EAST STORM BASIN NETWORK 2																			
R196	CB	EJIW-7045	Y	841.97	837.45	12 in	SW	837.76	12 in	N	-	-	-	-	-	-	6.53		Phase 1
R197	INLET	EJIW-7045	N	841.91	837.87	12 in	S	-	-	-	-	-	-	-	-	-	4.05		Phase 1
R188	CB	EJIW-7045	Y	836.72	832.49	12 in	N	832.59	12 in	S	-	-	-	-	-	-	6.22		Phase 1
R189	INLET	EJIW-7045	N	836.78	832.70	12 in	N	-	-	-	-	-	-	-	-	-	4.07		Phase 1
R198	CB	EJIW-7045	Y	839.89	835.51	12 in	N	835.61	12 in	S	-	-	-	-	-	-	6.38		Phase 1
R199	INLET	EJIW-7045	N	839.95	835.72	12 in	N	-	-	-	-	-	-	-	-	-	4.23		Phase 1
R181	MH	EJIW-1040Z-B	N	840.56	829.68	15 in	W	829.88	12 in	NE	-	-	-	-	-	-	10.88		Phase 1
R182	CB	EJIW-7045	Y	839.91	830.40	12 in	SW	830.50	12 in	E	-	-	-	-	-	-	11.51		Phase 1
R183	CB	EJIW-7045	Y	839.97	831.25	12 in	W	831.35	12 in	E	-	-	-	-	-	-	10.72		Phase 1
R183A	MH	EJIW-1040Z-B	N	840.89	832.99	12 in	W	834.04	12 in	E	835.39	12 in	S	-	-	-	7.89		Phase 1
R184	CB	EJIW-7045	Y	839.74	835.01	12 in	W	835.11	12 in	E	-	-	-	-	-	-	6.73		Phase 1
R185	CB	EJIW-7045	Y	839.68	835.25	12 in	W	835.35	12 in	SE	-	-	-	-	-	-	6.43		Phase 1
R186	CB	EJIW-7045	Y	841.00	836.43	12 in	NW	836.53	12 in	S	-	-	-	-	-	-	6.57		Phase 1
R187	INLET	EJIW-7045	N	841.03	836.78	12 in	N	-	-	-	-	-	-	-	-	-	4.25		Phase 1
176A	MH	EJIW-1040Z-B	N	834.67	829.29	12 in	E	829.39	12 in	SW	-	-	-	-	-	-	5.38		Phase 3
R179	CB	EJIW-7045	Y	833.92	829.62	12 in	NE	829.72	12 in	W	-	-	-	-	-	-	6.30		Phase 3
R180	INLET	EJIW-7045	N	833.86	829.83	12 in	E	-	-	-	-	-	-	-	-	-	4.03		Phase 3
R176	CB	EJIW-1040Z-N	Y	833.13	828.66	15 in	S	828.86	12 in	N	828.86	12 in	W	-	-	-	6.47		Phase 3
R177	CB	EJIW-7045	Y	835.88	831.51	12 in	S	831.61	12 in	N	-	-	-	-	-	-	6.37		Phase 3
R178	INLET	EJIW-7045	N	835.82	831.79	12 in	S	-	-	-	-	-	-	-	-	-	4.03		Phase 3
R174	CB	EJIW-1040Z-N	Y	837.40	833.28	12 in	NW	833.38	12 in	S	-	-	-	-	-	-	6.12		Phase 1
R175	INLET	EJIW-1040Z-N	N	838.29	834.27	12 in	N	-	-	-	-	-	-	-	-	-	4.02		Phase 1
R170	CB	EJIW-7045	Y	845.47	837.76	12 in	W	839.96	12 in	E	-	-	-	-	-	-	9.71		Phase 1
R171	MH	EJIW-1040Z-B	N	845.91	840.44	12 in	W	840.44	12 in	N	-	-	-	-	-	-	5.47		Phase 1
R172	CB	EJIW-7045	Y	844.69	840.52	12 in	S	840.52	12 in	N	-	-	-	-	-	-	6.17		Phase 1
R173	INLET	EJIW-7045	N	844.63	840.63	12 in	S	-	-	-	-	-	-	-	-	-	4.00		Phase 1
R153	MH	EJIW-1040Z-B	N	837.31	822.82	36 in	W	822.82	36 in	E	832.42	12 in	S	-	-	-	14.49	5'	Phase 1
R154	MH	EJIW-1040Z-B	N	838.15	822.99	36 in	W	823.39	30 in	N	828.59	15 in	E	-	-	-	15.16	5'	Phase 1
R155	CB	EJIW-1040Z-N	Y	833.14	823.73	30 in	S	823.73	30 in	N	-	-	-	-	-	-	11.40		Phase 1
R156	CB	EJIW-1040Z-N	Y	830.93	824.05	30 in	S	824.45	24 in	NE	826.45	15 in	N	-	-	-	8.87		Phase 1
R157	CB	EJIW-1040Z-N	Y	834.76	826.71	24 in	SW	828.21	24 in	E	-	-	-	-	-	-	10.05		Phase 1
R158	CB	EJIW-1040Z-N	Y	837.76	828.97	24 in	W	828.97	24 in	E	-	-	-	-	-	-	10.80		Phase 1
R159	CB	EJIW-1040Z-N	Y	838.73	829.33	24 in	W	829.33	24 in	NE	832.98	12 in	SE	-	-	-	11.39	5'	Phase 1
R160	CB	EJIW-1040Z-N	Y	838.24	829.64	24 in	SW	829.64	24 in	E	-	-	-	-	-	-	10.60		Phase 1
R161	CB	EJIW-7045	Y	839.26	829.90	24 in	W	831.40	24 in	E	-	-	-	-	-	-	11.36		Phase 1
R162	CB	EJIW-7045	Y	839.20	831.48	24 in	W	831.48	24 in	NE	-	-	-	-	-	-	9.73		Phase 1
R163	MH	EJIW-1040Z-B	N	840.92	831.51	24 in	SW	831.51	24 in	E	836.91	12 in	NE	-	-	-	9.41	5'	Phase 1
R164	CB	EJIW-1040Z-N	Y	839.06	831.69	24 in	W	832.09	18 in	S	835.06	12 in	E	-	-	-	9.37	5'	Phase 1
R165	CB	EJIW-1040Z-N	Y	838.04	832.36	18 in	N	832.76	12 in	S	-	-	-	-	-	-	7.67		Phase 1
165A	MH	EJIW-1040Z-B	N	844.97	835.69	12 in	N	835.79	12 in	S	-	-	-	-	-	-	9.28		Phase 1
R166	CB	EJIW-1040Z-MI	Y	844.29	837.67	12 in	N	837.77	12 in	E	-	-	-	-	-	-	8.61		Phase 1
R167	CB	EJIW-1040Z-MI	Y	846.91	838.32	12 in	W	842.31	12 in	S	-	-	-	-	-	-	10.59		Phase 4
R168	INLET	EJIW-7045	N	846.90	842.91	12 in	N	-	-	-	-	-	-	-	-	-	4.00		Phase 4
R130	CB	EJIW-1040Z-N	Y	828.24	822.92	18 in	W	822.92	18 in	E	-	-	-	-	-	-	7.32		Phase 1
R131	CB	EJIW-1040Z-N	Y	827.33	823.07	18 in	W	823.07	18 in	E	-	-	-	-	-	-	6.27		Phase 1
R132	CB	EJIW-1040Z-N	Y	829.08	823.36	18 in	W	823.59	18 in	E	-	-	-	-	-	-	7.72		Phase 1
R133	CB	EJIW-1040Z-N	Y	828.50	824.00	18 in	W	824.40	12 in	E	-	-	-	-	-	-	6.50		Phase 1
R134	CB	EJIW-7045	Y	836.03	827.21	12 in	W	827.31	12 in	E	-	-	-	-	-	-	10.81		Phase 1
R135	CB	EJIW-7045	Y	836.04	827.60	12 in	W	827.70	12 in	E	-	-	-	-	-	-	10.44		Phase 1
R136	CB	EJIW-1040Z-N	Y	832.28	828.10	12 in	W	828.20	12 in	E	-	-	-	-	-	-	6.18		Phase 1
R137	CB	EJIW-1040Z-N	Y	833.48	829.36	12 in	W	829.46	12 in	E	-	-	-	-	-	-	6.12		Phase 1
R138	INLET	EJIW-1040Z-N	N	835.90	831.88	12 in	W	-	-	-	-	-	-	-	-	-	4.03		Phase 1
R141	CB	EJIW-7045	Y	829.16	825.00	12 in	S	825.10	12 in	N	-	-	-	-	-	-	6.16		Phase 1
R142	INLET	EJIW-7045	N	829.22	825.21	12 in	S	-	-	-	-	-	-	-	-	-	4.01		Phase 1
R124	CB	EJIW-7045	Y	831.34	826.16	12 in	S	826.26	12 in	NE	-	-	-	-	-	-	7.18		Phase 1
R125	CB	EJIW-7045	Y	831.53	827.17	12 in	SW	827.27	12 in	N	-	-	-	-	-	-	6.35		Phase 1
R126	CB	EJIW-7045	Y	831.59	827.41	12 in	S	827.51	12 in	NW	-	-	-	-	-	-	6.18		Phase 1
R127	CB	EJIW-7045	Y	833.24	828.82	12 in	SE	828.92	12 in	W	-	-	-	-	-	-	6.42		Phase 1
R128	INLET	EJIW-7045	N	833.24	829.21	12 in	E	-	-	-	-	-	-	-	-	-	4.03		Phase 1
R140	CB	EJIW-7045	Y	838.88	834.71	12 in	SE	834.81	12 in	NW	-	-	-	-	-	-	6.17		Phase 1
R144	INLET	EJIW-7045	N	839.13	835.09	12 in	SE	-	-	-	-	-	-	-	-	-	4.05		Phase 1
R143	INLET	EJIW-7045	N	843.69	839.16	12 in	SW	-	-	-	-	-	-	-	-	-	4.53		Phase 4
R200	INLET	EJIW-7045	N	843.14	838.63	12 in	NW	-	-	-	-	-	-	-	-	-	4.51		Phase 4
R121	CB	EJIW-7045	Y	843.21	836.75	12 in	SW	836.85	12 in	N	-	-	-	-	-	-	8.46		Phase 4
R122	CB	EJIW-7045	Y	843.69	837.71	12 in	S	837.81	12 in	N	-	-	-	-	-	-	7.98		Phase 4
R123	INLET	EJIW-7045	N	842.20	838.17	12 in	S	-	-	-	-	-	-	-	-	-	4.03		Phase 4
R215	INLET	EJIW-7045	N	841.83	837.62	12 in	SE	-	-	-	-	-	-	-	-	-	4.22		Phase 1
R100	ES		N	N /A	821.00	48 in	SW	-	-	-	-	-	-	-	-	-	N /A	N / A	Phase 1
R101	CB	EJIW-1040Z-N	Y	828.10	821.11	48 in	NE	821.11	48 in	S	-	-	-	-	-	-	8.99	8'	Phase 1
R102	CB	EJIW-1040Z-N	Y	831.13	821.37	48 in	N	821.37	48 in	S	-	-	-	-	-	-	11.77	8'	Phase 1
R103	CB	EJIW-1040Z-N	Y	831.12	821.59	48 in	N	821.59	48 in	S	-	-	-	-	-	-	11.54	8'	Phase 1
R104	MH	EJIW-1040Z-B	N	833.81	821.71	48 in	N	821.71	36 in	S	822.51	36 in	E	-	-	-	12.10	8'	Phase 1
R105	CB	EJIW-1040Z-N	Y	827.18	821.87	36 in	N	821.87	36 in	S	822.79	18 in	E	-	-	-	7.31	6'	Phase 1
R106	CB	EJIW-1040Z-N	Y	827.32	822.13	36 in	N	822.23	36 in	E	-	-	-	-	-	-	7.19	6'	Phase 1
R107	CB	EJIW-1040Z-N	Y	827.30	822.26	36 in	W	822.26	36 in	E	-	-	-	-	-	-	7.04	5'	Phase 1
R108	CB	EJIW-1040Z-N	Y	827.33	822.33	36 in	W	822.33	36 in	E	-	-	-	-	-	-	7.00		Phase 1
R109	CB	EJIW-1040Z-N	Y	828.78	822.41	36 in	W	822.41	36 in	E	823.91	12 in	N	-	-	-	8.37	5'	Phase 1
R110	CB	EJIW-1040Z-N	Y	827.69	822.56	36 in	W	822.56	36 in	E	-	-	-	-	-	-	7.14	5'	Phase 1
R111	CB	EJIW-7045	Y	829.78	822.66	36 in	W	822.66	36 in	E	-	-	-	-	-	-	9.12	5'	Phase 1
R112	CB	EJIW-7045	Y	829.80	822.72	36 in	W	823.52	24 in	E	824.32	12 in	N	-	-	-	9.07	5'	Phase 1
R113	CB	EJIW-1040Z-N	Y	828.49	823.72	24 in	W	824.12	18 in	E	-	-	-	-	-	-	6.78		Phase 1
R114	CB	EJIW-1040Z-N	Y	832.04	825.32	18 in	W	825.52	15 in	E	-	-	-	-	-	-	8.72		Phase 1
R115	CB	EJIW-1040Z-N	Y	833.91	827.05	15 in	W	827.15	15 in	E	-	-	-	-	-	-	8.86		Phase 1
R116	CB	EJIW-1040Z-N	Y	838.16	830.15	15 in	W	830.25	12 in	N	833.10	12 in	NE	-	-	-	10.01		Phase 1
R117	CB	EJIW-1040Z-N	Y	837.60	831.02	12 in	S	831.12	12 in	N	833.47	12 in	NW	-	-	-	8.59		Phase 1
R118	CB	EJIW-1040Z-N	Y	837.96	833.83	12 in	S	833.93	12 in	N	-	-	-	-	-	-	6.13		Phase 1
R119	CB	EJIW-1040Z-N	Y	841.89	836.68	12 in	S	836.78	12 in	N	837.38	12 in	SE	837.38	12 in	NE	7.21		Phase 1
R120	CB	EJIW-1040Z-N	Y	841.89	837.26	12 in	S	837.36	12 in	NW	-	-	-	-	-	-	6.63		Phase 1

SEE NOTE 2 FOR SUMP DEPTH

SANITARY LEAD SCHEDULE

ALL LEADS ARE 6-INCH DIAMETER

SANITARY LEAD SCHEDULE

Lead	Elev at Main	Riser Height at Main	LF to Stub	Slope	Lowest Bldg Elev	Est.LF Stub to Bldg	Phase
East of S1							
L17	832.30	0.0	45	2.00%	837.11	12	Phase 1
L18	831.06	1.0	45	2.00%	836.90	12	Phase 1
L19	830.29	1.0	45	2.00%	836.14	12	Phase 1
L20	829.52	1.0	45	2.00%	835.25	12	Phase 1
L21	829.12	0.5	45	2.00%	834.46	12	Phase 1
L22	827.79	1.5	45	2.00%	834.00	12	Phase 1
L23	826.50	3.0	45	2.00%	833.95	12	Phase 1
L24	825.57	2.5	45	2.00%	832.94	12	Phase 1
L25	824.64	2.5	45	2.00%	831.94	12	Phase 1
L26	819.77	6.5	45	2.00%	830.95	12	Phase 1
L27	819.52	5.5	45	2.00%	829.80	12	Phase 1
West of S1							
L55	816.48	2.5	35	2.00%	823.39	12	Phase 2
L56	816.22	2.0	35	2.00%	822.83	12	Phase 2
L57	815.99	2.0	35	2.00%	822.28	12	Phase 2
L58	815.66	1.5	34	2.00%	821.73	12	Phase 2
L59	815.43	1.5	34	2.00%	821.18	12	Phase 2
L60	815.20	1.5	33	2.00%	820.96	12	Phase 2
L61	814.63	2.0	32	2.00%	821.16	12	Phase 2
L62	814.42	3.0	32	2.00%	821.80	12	Phase 2
L63	814.18	4.5	32	2.00%	822.91	12	Phase 2
L64	813.95	6.0	32	2.00%	824.36	12	Phase 2
L65	813.72	7.5	32	2.00%	825.60	12	Phase 2
L66	813.91	6.0	45	2.00%	824.62	12	Phase 2
L67	814.14	4.5	45	2.00%	823.19	12	Phase 2
L68	814.37	3.0	45	2.00%	822.12	12	Phase 2
L69	814.65	2.5	45	2.00%	821.58	12	Phase 2
L70	814.79	1.5	45	2.00%	821.02	12	Phase 2
L71	815.03	1.5	45	2.00%	821.09	12	Phase 2
L72	817.73	0.0	46	2.00%	822.23	12	Phase 2
L73	818.28	0.0	45	2.00%	822.95	12	Phase 2
L74	818.91	0.5	44	2.00%	824.02	12	Phase 2
L75	819.57	0.5	43	2.00%	824.88	12	Phase 2
L76	823.13	0.0	37	2.00%	827.50	12	Phase 2
L77	820.93	1.5	34	2.00%	826.74	12	Phase 2
L78	820.02	1.5	34	2.00%	826.00	12	Phase 2
L79	819.47	1.0	34	2.00%	825.00	12	Phase 2
L80	818.97	0.5	33	2.00%	823.94	12	Phase 2
L81	818.37	0.0	33	2.00%	823.01	12	Phase 2
L82	817.81	0.5	31	2.00%	822.52	12	Phase 2
L83	817.38	3.0	45	2.00%	825.10	12	Phase 2
L84	817.57	3.5	44	2.00%	825.63	12	Phase 2
L85	817.81	3.5	44	2.00%	826.16	12	Phase 2
L86	818.04	4.0	44	2.00%	826.72	12	Phase 2
L87	818.27	4.0	44	2.00%	826.95	12	Phase 2
L88	819.26	3.0	44	2.00%	826.95	12	Phase 2
L89	819.86	2.0	44	2.00%	826.49	12	Phase 2
L90	820.45	1.0	44	2.00%	825.94	12	Phase 2
L91	820.79	0.0	45	2.00%	825.35	12	Phase 2

SANITARY LEAD SCHEDULE

Lead	Elev at Main	Riser Height at Main	LF to Stub	Slope	Lowest Bldg Elev	Est.LF Stub to Bldg	Phase
East of S30							
L1	826.44	7.0	32	2.00%	838.07	12	Phase 1
L2	826.21	7.5	32	2.00%	838.07	12	Phase 1
L3	825.97	6.5	32	2.00%	836.70	12	Phase 1
L4	825.74	5.5	32	2.00%	835.50	12	Phase 1
L5	825.64	4.5	32	2.00%	834.30	12	Phase 1
L6	825.32	3.5	54	2.00%	833.51	12	Phase 1
L7	825.16	3.0	59	2.00%	832.85	12	Phase 1
L8	824.83	2.5	32	2.00%	831.90	12	Phase 1
L9	824.52	1.5	32	2.00%	830.52	12	Phase 1
L10	823.11	1.5	32	2.00%	828.87	12	Phase 1
L11	822.38	0.5	32	2.00%	827.23	12	Phase 1
L12	822.44	0.0	45	2.00%	827.08	12	Phase 1
L13	822.91	0.5	45	2.00%	828.28	12	Phase 1
L14	824.37	0.5	45	2.00%	829.47	12	Phase 1
L15	824.58	1.5	45	2.00%	830.69	12	Phase 1
L16	824.83	2.0	45	2.00%	831.32	12	Phase 1
L28	817.48	0.5	47	2.00%	822.72	12	Phase 1
L29	818.06	0.5	45	2.00%	823.30	12	Phase 1
L30	818.64	0.5	45	2.00%	823.88	12	Phase 1
L31	819.22	0.5	45	2.00%	824.46	12	Phase 1
L32	819.80	0.5	45	2.00%	825.05	12	Phase 1
L33	820.47	0.0	45	2.00%	825.18	12	Phase 1
L34	820.68	0.0	32	2.00%	824.83	12	Phase 1
L35	819.56	1.0	32	2.00%	824.83	12	Phase 1
L36	818.81	1.0	32	2.00%	824.08	12	Phase 1
L37	818.11	1.0	32	2.00%	823.33	12	Phase 1
L38	817.31	1.0	32	2.00%	822.58	12	Phase 1
West of S30							
L39	816.43	1.0	32	2.00%	822.00	12	Phase 2
L40	816.77	2.0	32	2.00%	823.32	12	Phase 2
L41	817.10	3.0	32	2.00%	824.71	12	Phase 2
L42	819.02	2.5	32	2.00%	826.10	12	Phase 2
L43	817.88	5.0	32	2.00%	827.46	12	Phase 2
L44	818.22	6.5	32	2.00%	828.87	12	Phase 2
L45	818.56	7.5	32	2.00%	830.26	12	Phase 2
L46	818.89	8.0	32	2.00%	831.23	12	Phase 2
L47	819.33	7.5	32	2.00%	831.39	12	Phase 2
L48	819.80	7.0	32	2.00%	831.39	12	Phase 2
L49	820.14	6.5	32	2.00%	830.81	12	Phase 2
L50	820.48	5.0	32	2.00%	830.05	12	Phase 2
L51	821.19	3.5	33	2.00%	829.30	12	Phase 2
L52	821.94	2.0	33	2.00%	828.55	12	Phase 2
L53	822.69	0.5	34	2.00%	827.80	12	Phase 2
L54	823.14	0.0	34	2.00%	827.35	12	Phase 2
L92	821.14	3.5	45	2.00%	829.32	12	Phase 2
L93	820.54	4.5	45	2.00%	829.87	12	Phase 2
L94	820.17	5.0	45	2.00%	829.87	12	Phase 2
L95	819.69	7.0	45	2.00%	831.48	12	Phase 2
L96	819.30	7.5	45	2.00%	831.48	12	Phase 2
L97	818.96	7.5	45	2.00%	831.30	12	Phase 2
L98	818.71	7.5	45	2.00%	830.72	12	Phase 2
L99	818.46	6.5	45	2.00%	829.75	12	Phase 2
L100	818.24	6.0	45	2.00%	828.73	12	Phase 2
L101	817.97	5.0	45	2.00%	827.71	12	Phase 2
L102	817.62	4.5	45	2.00%	826.70	12	Phase 2
L103	817.37	3.5	45	2.00%	825.68	12	Phase 2
L104	817.08	3.0	45	2.00%	824.57	12	Phase 2
L105	816.83	2.0	45	2.00%	823.46	12	Phase 2
L106	816.58	1.5	45	2.00%	822.50	12	Phase 2

SANITARY LEAD SCHEDULE

Lead	Elev at Main	Riser Height at Main	LF to Stub	Slope	Lowest Bldg Elev	Est.LF Stub to Bldg	Phase
MULTI-FAMILY							
D1	833.62	0.0	58	2.00%	838.66	3	Phase 1
D2	833.51	0.0	59	2.00%	838.66	3	Phase 1
D3	832.90	0.0	51	2.00%	837.60	3	Phase 1
D4	832.77	0.0	51	2.00%	837.60	3	Phase 1
D5	831.89	0.0	51	2.00%	836.60	3	Phase 1
D6	831.78	0.0	51	2.00%	836.60	3	Phase 1
D7	830.96	0.0	51	2.00%	835.60	3	Phase 1
D8	830.67	0.0	51	2.00%	835.60	3	Phase 1
D9	829.79	0.0	51	2.00%	834.60	3	Phase 1
D10	829.68	0.0	51	2.00%	834.60	3	Phase 1
D11	828.79	0.0	51	2.00%	833.60	3	Phase 1
D12	828.67	0.0	51	2.00%	833.60	3	Phase 1
D13	827.46	0.0	51	2.00%	832.40	3	Phase 1
D14	827.58	0.0	51	2.00%	832.40	3	Phase 1
D15	826.48	0.0	51	2.00%	831.39	3	Phase 1
D16	826.36	0.5	51	2.00%	831.39	3	Phase 1
D17	825.48	0.0	51	2.00%	830.41	3	Phase 1
D18	825.38	0.5	51	2.00%	830.41	3	Phase 1
D19	824.49	0.0	51	2.00%	829.41	3	Phase 1
D20	824.38	0.5	51	2.00%	829.41	3	Phase 1
D21	823.64	0.5	51	2.00%	828.70	3	Phase 1
D22	823.60	0.5	52	2.00%	828.70	3	Phase 1
D23	823.15	0.0	50	2.00%	828.10	3	Phase 1
D24	823.11	0.0	50	2.00%	828.10	3	Phase 1
D25	822.74	0.5	50	2.00%	828.08	3	Phase 1
D26	822.69	0.5	50	2.00%	828.08	3	Phase 1
D27	821.94	2.0	50	2.00%	828.57	3	Phase 1
D28	821.79	2.0	50	2.00%	828.57	3	Phase 1
D29	820.86	3.5	50	2.00%	829.12	3	Phase 1
D30	820.73	3.5	50	2.00%	829.12	3	Phase 1
D31	820.44	5.0	39	2.00%	829.83	3	Phase 1
D32	821.19	4.0	39	2.00%	829.83	3	Phase 1
D33	821.49	3.0	39	2.00%	829.23	3	Phase 1
D34	822.24	2.5	39	2.00%	829.23	3	Phase 1
D35	822.57	1.0	39	2.00%	827.94	3	Phase 1
D36	822.86	0.5	39	2.00%	827.94	3	Phase 1
D37	825.18	1.0	38	2.00%	830.52	3	Phase 1
D38	825.86	0.0	38	2.00%	830.52	3	Phase 1
D39	826.19	1.0	38	2.00%	831.52	3	Phase 1

SANITARY LEAD SCHEDULE

Lead	Elev at Main	Riser Height at Main	LF to Stub	Slope	Lowest Bldg Elev	Est.LF Stub to Bldg	Phase
D40	826.87	0.0	38	2.00%	831.52	3	Phase 1
D41	827.15	1.0	38	2.00%	832.52	3	Phase 1
D42	827.97	0.0	38	2.00%	832.52	3	Phase 1
D43	828.28	1.0	38	2.00%	833.68	3	Phase 1
D44	828.98	0.0	38	2.00%	833.68	3	Phase 1
D57	830.45	0.0	37	2.00%	834.71	3	Phase 1
D58	830.35	0.0	31	2.00%	834.71	3	Phase 3
D59	829.85	1.5	33	2.00%	835.55	3	Phase 3
D60	829.76	1.5	30	2.00%	835.55	3	Phase 3
D61	829.45	2.0	49	2.00%	836.35	3	Phase 3
D62	829.40	2.0	49	2.00%	836.35	3	Phase 3
D63	829.02	2.5	50	2.00%	836.25	3	Phase 3
D64	828.98	2.5	50	2.00%	836.25	3	Phase 3
D65	828.65	2.5	32	2.00%	835.50	3	Phase 3
D66	828.61	2.5	37	2.00%	835.50	3	Phase 3
D67	828.34	2.0	39	2.00%	835.07	3	Phase 3
D68	828.30	2.0	39	2.00%	835.07	3	Phase 3
East of S30							
D45	829.48	0.5	50	2.00%	834.51	3	Phase 1
D46	828.77	1.0	50	2.00%	834.51	3	Phase 1
D47	828.47	2.5	50	2.00%	835.71	3	Phase 1
D48	827.78	3.0	50	2.00%	835.71	3	Phase 1
D49	827.47	5.0	50	2.00%	837.03	3	Phase 1
D50	826.85	5.5	50	2.00%	837.03	3	Phase 1
D51	827.58	4.0	39	2.00%	836.23	3	Phase 1
D52	827.67	4.0	39	2.00%	836.23	3	Phase 1
D53	828.58	2.0	39	2.00%	834.95	3	Phase 1
D54	828.67	2.0	39	2.00%	834.95	3	Phase 1
D55	829.57	0.0	39	2.00%	833.90	3	Phase 1
D56	829.68	0.0	39	2.00%	833.90	3	Phase 1
COMMERCIAL							
A	837.14	N / A	38	2.00%	850.00	5	Phase 4
B	833.29	N / A	99	2.00%	849.00	5	Phase 4
C	833.99	N / A	98	2.00%	849.00	5	Phase 4
D	835.54	N / A	48	2.00%	846.50	5	Phase 4

EXISTING SANITARY SEWER STRUCTURE RECONSTRUCTION SCHEDULE

EXISTING SANITARY STRUCTURE SCHEDULE

MH	EX. RIM	RECON. RIM	Pipe Out Inv Out	Pipe Out Dir	Pipe In Inv In	Pipe In Dir	Pipe In Inv In	Pipe In Dir	New Depth Rim-Inv	Diameter	Phase
43	828.35	832.00	808.89	21" S	809.54	21" E	809.52	21" W	23.11	4'	Phase 2
44	836.01	836.87	809.94	21" W	809.96	21" E			26.93	4'	Phase 2
45	836.85	833.44	810.32	21" W	810.36	21" E			23.12	4'	Phase 2
46	825.79	827.01	810.85	21" W	810.88	21" N			16.16	4'	Phase 1
47	826.34	829.70	811.12	21" S	811.17	21" N			18.58	4'	Phase 1

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

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR; NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

COPYRIGHT © 2016 ATWELL LLC NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR WRITTEN CONSENT OF ATWELL LLC

ATWELL
866.850.4200 www.atwell-group.com
311 N. MAIN ST.
ANN ARBOR, MI 48104
734.994.4000

SECTION 20 & 21
TOWN 3 SOUTH, RANGE 6 EAST
PITTSFIELD TOWNSHIP
WASHTENAW COUNTY, MICHIGAN

CLIENT
SCHAFER DEVELOPMENT, LLC

INGLEWOOD PARK
FINAL SITE PLAN

STORM AND SANITARY STRUCTURE AND LEAD SCHEDULES

DATE
SEPTEMBER 13, 2016

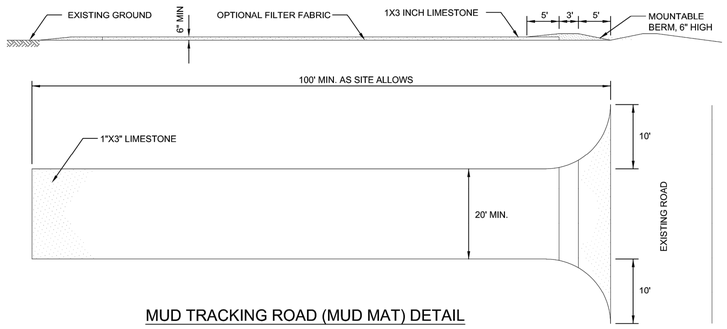
11/19/2015: PER WCRC
01/18/2016: TWP. WETLAND REVIEW
02/09/2016: TWP/WCWRC/WCRC
03/09/2016: PER WCWRC
03/15/2016: PER WCRC
04/19/2016: PER WCRC
06/03/2016: PER TWP.
06/21/2016: PER SESC CHECKLIST
07/14/2016: MDEQ WM-SAN PERMITS
07/19/2016: PER TWP.
07/21/2016: MDEQ WM-SAN PERMITS
08/17/2016: PER TWP.
09/13/2016: PER TWP.
11/16/2016: PROP. LINE MOD. PER UBE

REVISIONS

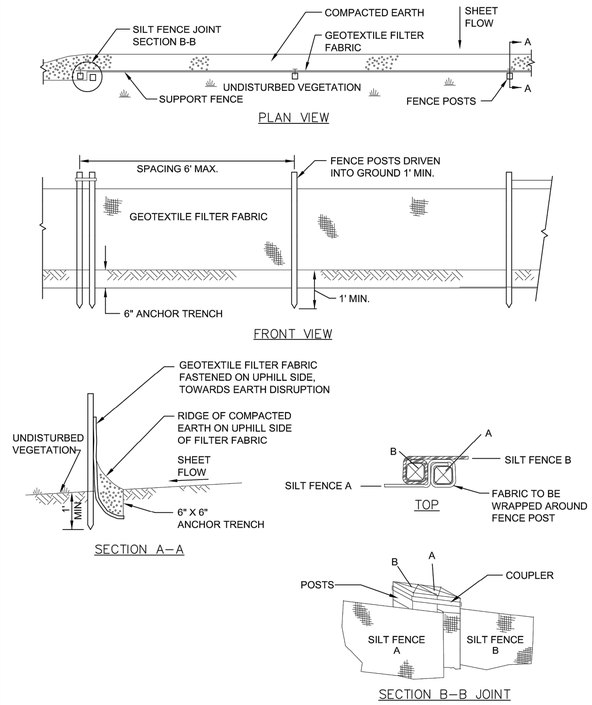
SCALE 0 -- --
NO SCALE

DR. SK | CH. SS
P.M. MB
BOOK
JOB 13001886.10
SHEET NO.
91a

K:\13001886\DWG\PLAN SETS\FINAL SITE PLAN\13001886SF-17-DT.DWG 11/16/2016 5:30 PM STEPHEN KESSEL

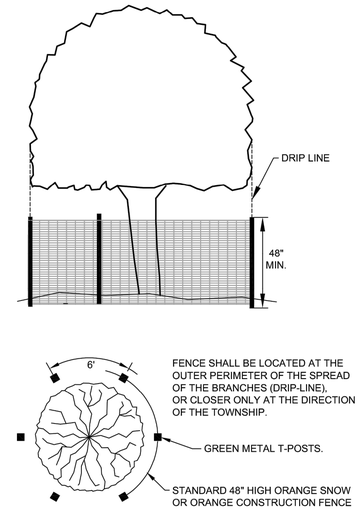


MUD TRACKING ROAD (MUD MAT) DETAIL



SILT FENCE

NOT TO SCALE



NOTES:
1. ALL TREES TO BE REMOVED WILL BE IDENTIFIED BY RED FLAGGING.
2. TREE PROTECTION FENCING IS TO BE ERECTED PRIOR TO ANY EARTHWORK OR CONSTRUCTION AND IS TO REMAIN IN PLACE UNTIL CONSTRUCTION AND GRADING IS COMPLETE.
3. ALL DEBRIS, FILL, EQUIPMENT OR MATERIAL IS TO BE KEPT CLEAR OF AREA WITHIN PROTECTIVE FENCE. NO CLEANING OF EQUIPMENT OR MATERIAL OR STORAGE OR DISPOSAL OF ANY MATERIAL WITHIN THE DRIP LINE OF ANY TREES TO BE SAVED.

TREE PROTECTION FENCE DETAIL

NOT TO SCALE

PITTSFIELD CHARTER TOWNSHIP
SOIL EROSION AND SEDIMENTATION CONTROL NOTES
GENERAL

1. The contractor shall implement and maintain the soil erosion control measures as shown on the plans at all times during construction on this project. Any modifications or additions to the soil erosion control measures due to construction or changed conditions, shall be complied with as required or directed by the owner, project engineer or Pittsfield Township.
2. All soil erosion and sedimentation control work shall conform to the permit requirements of Pittsfield Township and the laws of the State of Michigan.
3. A NPDES construction activity permit is required for all sites greater than 5 acres.
4. Daily inspections shall be made by the contractor. Periodic inspections may be made by the owner/project engineer/Township to determine the effectiveness of erosion and sedimentation control measures. Any necessary corrections shall be made without delay.
5. Erosion and sedimentation from work on the site shall be contained on the site and not be allowed to collect on any off-site areas or in waterways.
6. All mud/dirt tracked onto roads from the site due to construction, shall be promptly removed by the contractor.
7. Restoration of all disturbed areas, including placement of topsoil, seed, fertilizer and mulch and/or sod shall be done within 5 days of the completion of final grade.
8. Construction operations shall be scheduled and performed so that preventative soil erosion control measures are in place prior to excavation in critical areas and temporary stabilization measures are in place immediately following backfilling operations.
9. Special precautions will be taken in the use of construction equipment to prevent situations that promote erosion.
10. Proper dust control shall be maintained during construction by use of water trucks and/or chloride as required.
11. The contractor shall be responsible for maintaining all temporary soil erosion control measures and removal of some upon authorized completion of project. Completion of project will not be authorized until all site work, home building, road work and utility construction is complete and all soils are stabilized.
12. The contractor shall not grade in existing wetland or conservation areas to be protected. Silt fence shall be installed and maintained adjacent to existing wetland and conservation areas to prevent grading, erosion and sedimentation into them.
13. Tree protection fencing must remain intact until restoration of the site is complete.

SEQUENCE OF CONSTRUCTION

1. Install sediment fence and tree protection fencing prior to any grading operation.
2. Install mud-tracking pad.
3. Construct temporary sediment/detention basin.
4. Place topsoil, fertilizer, seed and mulch over the entire detention basin area.
5. Rough grade site, stockpile topsoil and begin building construction.
6. Install storm drainage system including riprap and parking lot inlet filters and detention basin standpipe.
7. Maintain erosion and sedimentation control measures, as required.
8. Install sanitary sewer and water systems.
9. Bring pavement areas to sub-base grade, place sub-base and bituminous pavement.
10. Install franchised utilities.
11. Finish grade, redistribute topsoil, seed and mulch all disturbed areas.
12. Remove any accumulated sediment within the detention basin and replace clean washed stone around standpipe.
13. Complete construction of site.
14. Insure all soil is stabilized. Remove all temporary soil erosion control measures.

SEEDING/SOD

1. Seed or sod in accordance with project specifications.
2. All areas of disturbed earth that are not to be paved or sodded shall have 4 inches of topsoil, seed, fertilizer and mulch.
3. Immediately after seeding, mulch all seeded areas with unweathered small grain straw (preferably wheat) or hay spread. Spread uniformly at the rate of 1 ½ to 2 tons or 100 pounds (2 to 3 bales) per 1,000 square foot. This mulch should be anchored with a disc-type mulch-anchoring tool.
4. Any disturbed area not paved, seeded or mulched, sodded or built upon by November 15, is to be mulched in the manner as specified above, in order to provide soil erosion protection during the winter and early spring.
5. All erosion and sedimentation control prevention procedures and structures are to comply with the Standards and Specifications for soil erosion and sediment control of the Washtenaw County Soil Conservation District.
6. Drainage ditches and slopes steeper than 1:4 (25%) shall be stabilized with erosion control blankets.
7. Steep slopes that do not take upon initial seeding must be re-seeded and stabilized with erosion control blankets.
8. Where excavation has been through lawn areas, the CONTRACTOR shall restore the disturbed area by placing topsoil and seeding or sodding over the final backfill material.

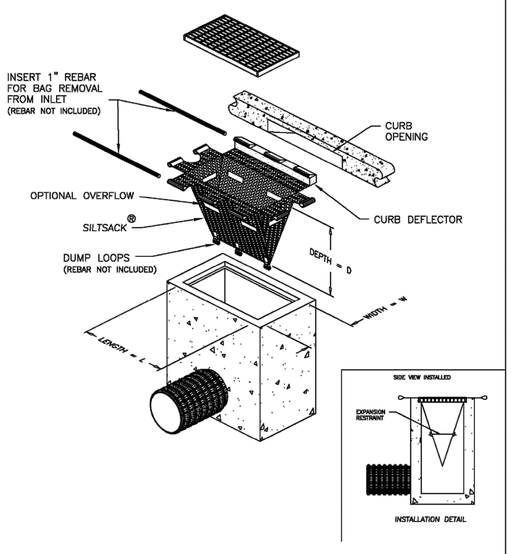
CATCH BASIN/MANHOLE PROTECTION

1. Protect storm sewer catch basins with Siltsack. or approved equivalent as follows:

ROADS

1. During construction, all roads shall be protected from unvegetated areas washing onto road surfaces by placement of silt fence behind curb or a 10 foot wide straw mulch bank behind the curb or other approved method and/or as shown on the plans.
2. During construction of any portion of the project, roads shall be maintained free of dirt, silt and construction debris.

Pittsfield SEC 9/22/2009



DETAIL OF INLET SEDIMENT CONTROL DEVICE
TYPE B – WITH CURB DEFLECTOR

Environmental
Your Complete Source for Geosynthetic Solutions

AGF Environmental, Inc.
2831 Cardwell Rd.
Richmond, Virginia 23234
(800) 448-3636

SILTSACK®
SPECIFICATIONS

NOTE: THE SILTSACK® WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS.

REGULAR FLOW SILTSACK®
(FOR AREAS OF LOW TO MODERATE PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	300 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	120 LBS
MULLEN BURST	ASTM D-3786	808 PSI
TRAPEZOID TEAR	ASTM D-4533	120 LBS
UV RESISTANCE	ASTM D-4355	80 %
APPARENT OPENING SIZE	ASTM D-4751	40 US SIEVE
FLOW RATE	ASTM D-4491	40 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	0.55 SEC -1

* HI-FLOW SILTSACK®
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	428 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

OIL-ABSORBANT SILTSACK®
(FOR AREAS WHERE THERE IS A CONCERN FOR OIL RUN-OFF OR SPILLS)

DEPENDING ON YOUR PARTICULAR APPLICATION, THE SILTSACK CAN BE MADE FROM EITHER ONE OF THE ABOVE FABRICS WITH AN OIL-ABSORBANT PILLOW INSERT OR, MADE COMPLETELY FROM AN OIL-ABSORBANT SILTSACK WITH A WOVEN PILLOW INSERT.

SILTSACK DISTRIBUTORS:
PRICE & COMPANY
(www.priceandcompany.com)

METRO GRAND RAPIDS, MI
425 36TH STREET SW
WYOMING, MI 49548-2108
1-800-248-8230

METRO DETROIT, MI
29165 WALL STREET
WIXOM, MI 48393-3525
1-866-960-4300

(* HI-FLOW SILT SACK SHALL BE USED FOR ALL APPLICATIONS WITHIN PITTSFIELD TOWNSHIP)

SILTSACK

NOT TO SCALE

PITTSFIELD CHARTER TOWNSHIP

Pittsfield Charter Township
6201 W. Michigan Ave.
Ann Arbor, MI 48108–9721
48108–9721
Tel. 734.822.3101
www.pittsfield-mi.gov

Revision	By	Appd.	YY.MM.DD
SILTSACK	BWA	DRW	12.01.03
TWP REV	BWA	DRW	11.04.27
UPDATES	TTN	DRW	10.01.20

Issued	By	Appd.	YY.MM.DD
File Name: SE-01	TTN	DRW	07.10.01
	Dwn.	Chkd.	Dsgn. YY.MM.DD

Permit-Seal

Client/Project
PITTSFIELD TOWNSHIP

Pittsfield Township, Michigan

Title
SOIL EROSION DETAILS AND NOTES

Project No. 2075001300
Scale NOT TO SCALE
Revision 1

STORM SEWER AND DRAINAGE STRUCTURES

1.00 GENERAL

1.01 DESCRIPTION

A. Furnish all labor, tools, equipment and materials to construct all storm sewers, and drainage structures as herein specified. No sewers shall be accepted until the sewer system has passed the system acceptance tests.

1.02 TESTING

A. General

1. The CONTRACTOR shall furnish all equipment and personnel to conduct system acceptance tests as specified herein on all completed sewers. All tests shall be conducted under the supervision of the ENGINEER. No acceptance tests shall be conducted until the entire sewer system is constructed or just prior to placing the line in service providing the sewer pipe has been installed for not less than 30 days.

B. Test for Alignment

1. All sewers shall be laid accurately to the line and grade designed by the ENGINEER. The sewers will be tested for alignment by shining a light through the pipe at a manhole and viewing the light from an adjacent manhole. Any section of sewer in which a light cannot be seen from one manhole to the next shall be corrected to the satisfaction of the ENGINEER to pass this test.

C. Material Tests

1. The CONTRACTOR shall have tests of pipe strength made by an independent testing laboratory. Tests of up to 4 lengths of sewer pipe per hundred lengths may be required to show compliance with the Specifications. All pipe delivered to the job site shall be accompanied with a manufacturer's certificate of compliance to the Specifications.

D. Submittals

1. The CONTRACTOR shall submit shop drawings, or data sheets for all castings, steps and manholes.

2. The CONTRACTOR shall submit certification letters for all pipes. All letters must contain the following: Contractors name, project name, township name, current date, certification of pipe provided and letterhead of the certifying company.

2.00 PRODUCTS

2.01 PIPE

A. Reinforced concrete pipe and manhole tees shall be no less than the latest revision of ASTM C76, with the class designation as shown on the Plans or in the Proposal.

B. Concrete pipe shall have tongue and groove gasketed premium joints.

C. Corrugated steel pipe shall meet the requirements of AASHO M-190 for coated pipe latest revision. Minimum gage thickness shall be as shown on the Plans.

2.02 REINFORCED CONCRETE MANHOLES

A. Manholes shall conform to the current ASTM Specifications for precast reinforced concrete Manhole Sections, serial designation C478. Manhole section joints shall conform to ASTM Designation C990. All cones shall be eccentric with an offset step configuration. Concrete adjustment rings or riser rings shall not be used for adjusting the height of the structure.

B. All manhole component parts shall have the name of the manufacturer stenciled on the inside. The lettering or logo shall be a minimum of 4 inches high.

2.03 MORTAR FOR MANHOLES

A. Mortar for plastering manholes and drainage structures shall be made of one part Portland cement and two parts fine aggregate.

2.04 BRICK AND BLOCK

A. Brick for brick and mortar structures shall conform to the current ASTM Specification C32. Block for block and mortar structures shall conform to the current ASTM Specification C135.

B. The concrete block masonry used to construct manhole and catch basin walls shall be solid curved blocks with the inside and outside surfaces curved to the required radii. The blocks shall have tongue and groove or other approved type of joint at the ends so that the units interlock to form a strong, rigid structure. Curved blocks shall have the inside and outside surfaces parallel.

C. The block shall not exceed 18 inches in length or 8 inches in depth (height). No block shall be less than 6 inches in width (thickness). All blocks in one structure shall be of the same height dimension. The blocks shall be designed for length so that only full-length or half-length blocks are required to lay the circular wall of any one course.

D. Blocks intended for use in the cones or tops of manholes and catch basins shall have such shape as may be required to form the structure as shown on the Plans with inside and outside joint not to exceed 1/4-inch in thickness.

2.05 STRUCTURE FRAMES AND COVERS

A. Structures frames and covers shall weigh not less than 350 lbs. Each frame and cover shall have machined bearing surfaces and shall be suitably notched for convenient removal of the cover. Each solid manhole cover shall be marked Storm Sewer with letters integrally cast into the cover.

B. Frames and Covers shall be as follows:
1. For use on manholes: East Jordan 1040Z, with Type B cover lettered "STORM SEWER", or equal. Structures 24-inches in diameter shall have the 1045 Z frame.
2. For use on drainage structures in paved areas: East Jordan 1040Z, with Type M1 cover, with "DUMP NO WASTE" lettering and trout logo.
3. For use on drainage structures in curbed areas: East Jordan 7045 or 7065, with "DUMP NO WASTE" lettering and trout logo.
4. For use on drainage structures in landscaped areas: East Jordan 1040Z, with 1040 N 7", with "DUMP NO WASTE" lettering and trout logo.

C. All frames and covers shall be coated by the manufacturer with coal tar pitch varnish or other asphaltum coating reviewed by the ENGINEER.

D. All covers for drainage structures shall have storm drain markers affixed to the nearest available flat surface. The storm drain markers shall be manufactured by Das Manufacturing and shall be #SDR "No Dumping. Drains to River." The storm drain markers shall be installed per the manufacturer's recommendations.

2.06 MANHOLE STEPS

A. Steps shall be plastic coated steel. They shall be M.A. Industries PS1-PF for precast manholes, PS1-B for block manholes, or equal.

2.07 DRAINAGE STRUCTURES

A. All manholes and catch basins shall be precast unless otherwise specified.

B. Manhole and catch basin bottoms shall be concrete and top of slab shall have a troweled finish.

C. Upon approval by the ENGINEER, the manhole and catch basin walls may be constructed of concrete block masonry or concrete manhole pipe conforming to the requirements of the specifications previously listed. Construction shall be in accordance with the details for Catch Basin and Storm Sewer Manhole shown on the Plans.

D. A plaster coat of mortar 1/2-inch in thickness shall be applied to the inside and outside surface of all manholes and catch basins constructed with concrete block masonry or sewer brick. The inside coat of mortar shall be applied in a smooth, neat workmanlike manner.

E. Final adjustment of the top of manholes and catch basins, so that the manhole or catch basin cover is at finished elevations as shown on the Plans or meets the finished surface, may be accomplished with sewer brick conforming to the previously listed Specifications. The total height of brick for this purpose shall not exceed 9 inches. The total chimney height shall not exceed 18 inches.

F. All block and brick masonry units shall be laid in a full bed of mortar. The inside joints of the block masonry construction shall be tooled in a neat and workmanlike manner.

3.00 EXECUTION

3.01 EXCAVATION AND BACKFILL

A. All excavation and backfill 12 inches above the crown of pipe shall conform to Section 2.04, Earthwork of these specifications.

B. The trench shall be backfilled closely behind the pipe laying. Unless otherwise directed or permitted by the ENGINEER, the backfilling shall follow and be completed to the top of the trench within four pipe lengths behind pipe laying.

3.02 BEDDING

A. Concrete pipe shall be laid on a compacted granular material placed on the bottom of the trench to a depth of not less than 4 inches. Where indicated on the Plans or required by the ENGINEER, concrete encasement or cradle shall be used.

B. For all pipes, compacted aggregate material shall be placed at the sides of the pipe in 12-inch lifts and cover not less than 12 inches above the crown of the pipe.

C. "Granular Material" shall be MDOT class II, placed in not more than 6-inch layers and compacted to not less than 90% standard density.

3.03 PIPE INSTALLATION

A. All pipe shall be laid true to the required lines and grades. All trenches when pipe laying is in progress, shall be kept dry, and all pipes and fittings shall be uniformly supported on a properly trimmed bedding with holes at each joint to receive bells. All pipe shall be laid with bells uphill.

B. The grade as shown on the profiles is that of the pipe invert and that to which the work must conform. The grade shall be kept by laser or other tools which shall be furnished by the CONTRACTOR at his expense. Each pipe shall be laid accurately to the line and grade as shown on the Plans and in such manner as to form a close concentric joint with the adjoining pipe and prevent sudden offsets of the invert. The interior of sewers shall, as the work progresses, be cleaned of all dirt, cement, debris and other superfluous materials of every description. Bulkheads shall be used to keep foreign materials out of the open end of the sewer when work is not in progress.

C. The location of the piping as shown on the Plans has been determined to avoid, insofar as possible, interference with trees or structures or fixtures above ground and other underground mains, services, utilities or structures. Any change in location or alignment of piping, which may be found more feasible or practicable as the work progresses, shall be made by the CONTRACTOR, as the ENGINEER may direct.

D. All pipe shall be carefully lowered and moved into position in trench or vault in a controlled manner such as will prevent damage to the pipe and any coatings or lining. An excessive amount of scratching on the surface of the concrete pipe will be considered cause for rejection.

E. All cutting of the pipe shall be done in a neat workmanlike manner with the least amount of waste and without damage to existing or new lines. A fine toothsaw, tubing cutter or similar tool may be used to cut concrete pipe. Cuts must be square. Ragged edges shall be removed with a cutting tool or file.

F. Breaks in pipe or joints shall be repaired to the satisfaction of the ENGINEER and at the expense of the CONTRACTOR.

3.04 CONNECTIONS TO EXISTING MANHOLES

A. When a sewer is connected to an existing manhole, a hole adequate to receive the new pipe shall be cored into the manhole.

B. If the existing manhole is of brick construction, a single rowlock of brick shall be turned over the new pipe and the existing manhole brick work shall be cleaned, pointed and given a 1/2-inch mortar coat on the outside surface.

C. For connections to existing precast reinforced concrete manholes, a hole shall be cored into the concrete manhole wall to receive the pipe. Reinforcing steel shall not be cut out shall be bent and replaced in the area that is to be patched. A form shall be constructed over the area of pipe penetration. The formed area shall then be filled with concrete.

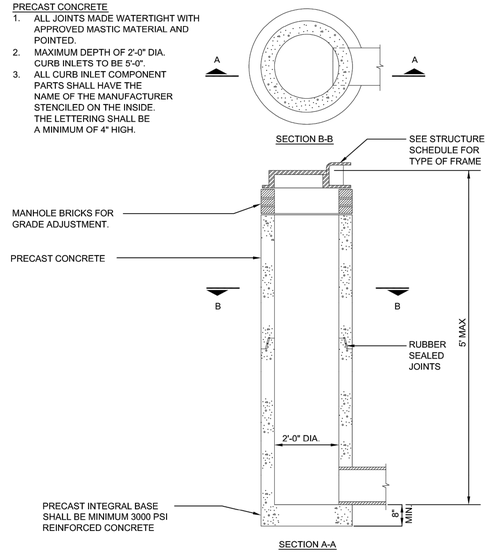
D. Closure of the manhole wall shall be made watertight using concrete.

3.05 ANIMAL GRATES

A. Animal grates shall be required on all endsections greater than 12-inch diameter.

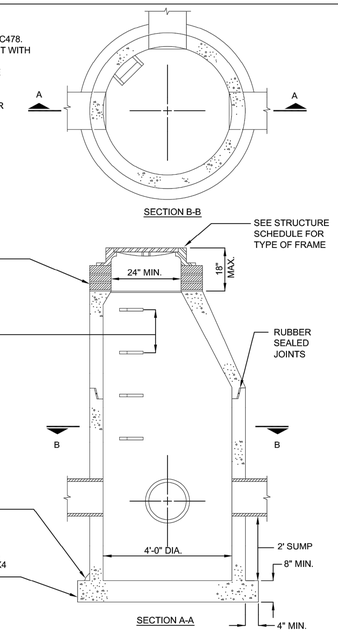
PCT February 2008

PRECAST CONCRETE
1. ALL JOINTS MADE WATERTIGHT WITH APPROVED MASTIC MATERIAL AND POINTED.
2. MAXIMUM DEPTH OF 2'-0" DIA. CURB INLETS TO BE 5'-0".
3. ALL CURB INLET COMPONENT PARTS SHALL HAVE THE NAME OF THE MANUFACTURER STENCILED ON THE INSIDE. THE LETTERING SHALL BE A MINIMUM OF 4" HIGH.



2' DIAMETER INLET

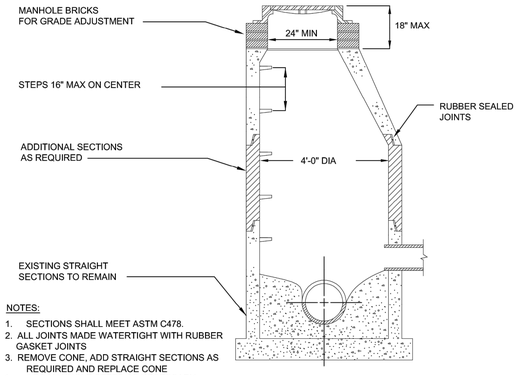
PRE-CAST CONCRETE MANHOLE
1. SECTIONS SHALL MEET ASTM C478.
2. ALL JOINTS MADE WATERTIGHT WITH RUBBER GASKET JOINTS.
3. CONE TO BE ECCENTRIC TYPE
4. ALL MANHOLE COMPONENT PARTS SHALL HAVE THE NAME OF THE MANUFACTURER STENCILED ON THE INSIDE. THE LETTERING SHALL BE A MINIMUM OF 4" HIGH.



4' DIAMETER CATCH BASIN

AFFIX TO SURFACE ON OR NEAR ALL DRAINAGE COVERS.

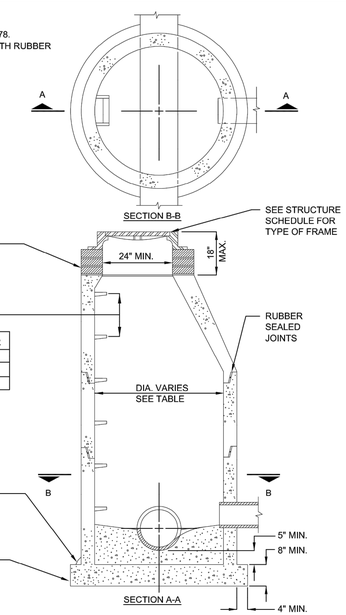
STORM DRAIN MARKER



NOTES:
1. SECTIONS SHALL MEET ASTM C478.
2. ALL JOINTS MADE WATERTIGHT WITH RUBBER GASKET JOINTS
3. REMOVE CONE, ADD STRAIGHT SECTIONS AS REQUIRED AND REPLACE CONE
4. ADD MANHOLE STEPS AS NECESSARY
5. ADD ADJUSTMENT RINGS FOR RIM GRADE ADJUSTMENT

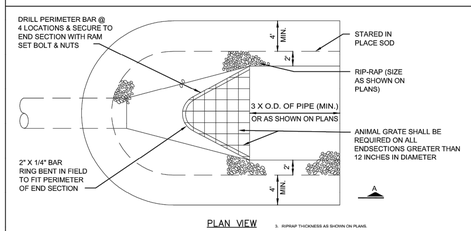
MANHOLE & CATCH BASIN RECONSTRUCTION DETAIL

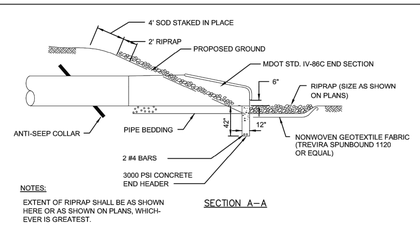
PRE-CAST CONCRETE MANHOLE
1. SECTIONS SHALL MEET ASTM C478.
2. ALL JOINTS MADE WATERTIGHT WITH RUBBER GASKET JOINTS
3. CONE TO BE ECCENTRIC TYPE
4. ALL MANHOLE COMPONENT PARTS SHALL HAVE THE NAME OF THE MANUFACTURER STENCILED ON THE INSIDE. THE LETTERING SHALL BE A MINIMUM OF 4" HIGH.



PIPE SIZE	MANHOLE DIAMETER
12"-24"	4'-0" MIN.
30"-36"	5'-0" MIN.
42"-48"	6'-0" MIN

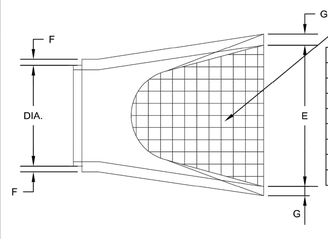
STORM SEWER MANHOLE



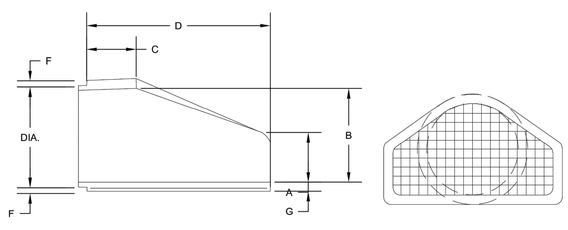


NOTES:
EXTENT OF RIPRAP SHALL BE AS SHOWN HERE OR AS SHOWN ON PLANS, WHICH-EVER IS GREATEST.

END SECTION AND RIPRAP DETAIL



DIA	A	B	C	D	E	F	G
12"	5"	13"	45.5"	72"	24"	2"	2"
15"	7"	16"	43.5"	72"	30"	2.25"	2.25"
18"	11"	19"	41.5"	72"	36"	2.5"	2.5"
24"	12"	25"	29"	72"	48"	3"	2"
30"	14"	31"	19"	72"	60"	3.5"	3.5"
36"	17"	37"	34.5"	96"	72"	4"	4"
42"	22"	43"	32.5"	96"	78"	4.5"	4.5"
48"	24"	49"	23.5"	96"	84"	5"	5"



NOTE:
FLARED END SECTIONS SHALL BE MANUFACTURED TO THE CLASS SPECIFICATIONS AS THE PIPE ITSELF.

STANDARD END SECTIONS FOR PRECAST CONCRETE

Pittsfield Charter Township
6201 W. Michigan Ave.
Ann Arbor, MI 48108–9721
48108–9721
Tel. 734.822.3101
www.pittsfield–mi.gov

Revision	By	Appd.	YY.MM.DD
UPDATES	MRH	DRW	14.01.24
TWP REV	BWA	DRW	12.08.09
TWP REV	BWA	DRW	11.04.27
UPDATES	BWA	DRW	10.10.25
UPDATES	TTN	DRW	10.01.20

Issued	By	Appd.	YY.MM.DD
File Name: ST–01	TTN	DRW	07.10.01
	Dwn.	Chkd.	Dsgn. YY.MM.DD

Permit-Seal

Client/Project
PITTSFIELD TOWNSHIP

Pittsfield Township, Michigan

Title
STORM SEWER DETAILS AND SPECIFICATIONS

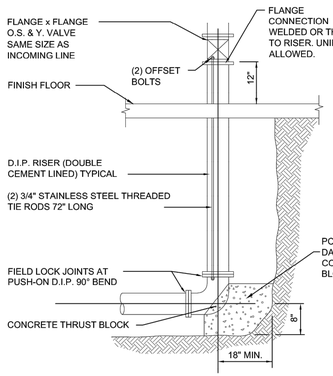
Project No. 2075001300

Scale NOT TO SCALE

Revision

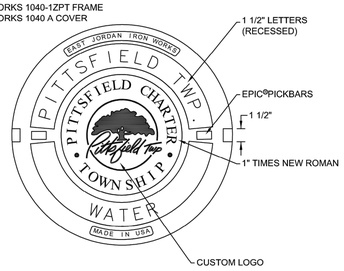
FIRST VALVE SHALL BE INSTALLED PRIOR TO FLUSHING

RISER TO BE A MAXIMUM 5 HORIZONTAL FEET FROM POINT WHERE PIPE ENTERS THE BUILDING.



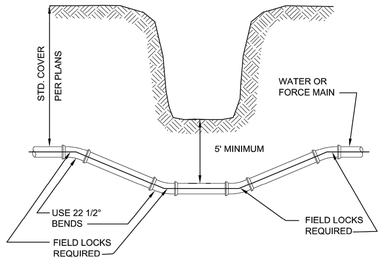
FIRE PROTECTION RISER DETAIL

EAST JORDAN IRON WORKS 1040-1ZPT FRAME
EAST JORDAN IRON WORKS 1040 A COVER

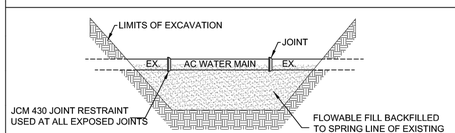


COVER DETAIL

PIPES SHALL BE RESTRAINED PER DIPRA RESTRAINT REQUIREMENTS



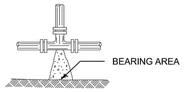
DITCH & STREAM CROSSING



ASBESTOS CEMENT (AC) WATER MAIN

ELBOWS

ELBOWS				
PIPE DIA. INCHES		BEARING AREA SQUARE FEET		
		90°	45°	22 1/2°	11 1/4°
4		2.1	1.1	0.6	0.3
6		4.1	2.2	1.1	0.6
8		6.8	3.7	1.9	0.9
10		10.1	5.5	2.8	1.4
12		14.1	7.6	3.9	2.0
16		24.2	13.0	6.7	3.3
18		30.0	16.3	8.3	4.2
20		36.8	19.9	10.1	5.1



TEES, CROSSES & HYDRANTS

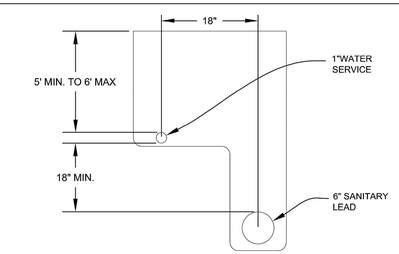
TEES, CROSSES & HYDRANTS		
PIPE DIA. INCHES		BEARING AREA SQUARE FEET
4		1.5
6		2.9
8		4.8
10		7.1
12		10.0
16		17.1
18		21.0
20		26.0

NOTES:
1. CONCRETE FOR ALL THRUST BLOCKS SHALL BE 3000 PSI, 28 DAY STRENGTH MIN.
2. ALL THRUST BLOCKS SHALL BE POURED AGAINST UNDISTURBED EARTH
3. BOLTS, FITTINGS & JOINTS SHALL BE KEPT CLEAR OF CONCRETE
4. A BEARING CAPACITY OF 2000# PER FOOT WAS USED IN DETERMINING THE MINIMUM "BEARING AREAS" IN THE ABOVE TABLE
5. THE CROSS SECTION OF THE THRUST BLOCKS SHALL BE SQUARE
6. IN ADDITION TO THRUST BLOCKS, ALL PIPE JOINTS SHALL BE RESTRAINED WITH LOCKING GASKETS PER DIPRA'S STANDARDS.

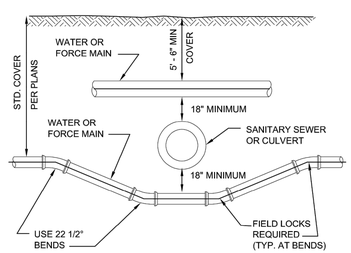
SOIL CHARACTERISTICS	FACTOR
(A) LOOSE COARSE OR MEDIUM SAND; COMPACT FINE SAND; COMPACT SAND-CLAY SOILS; STIFF CLAY	0.33
(B) FIRM FINE SAND; COMPACT INORGANIC SILT; FIRM SAND-CLAY SOILS; MEDIUM CLAY	0.50
(C) LOOSE FINE SAND; FIRM INORGANIC SILT	0.67
(D) LOOSE SAND-CLAY SOILS; LOOSE INORGANIC SILT SOFT CLAY	1.00

"BEARING AREA" x FACTOR = ACTUAL BEARING AREA
2.1 x .5 = 1.05 SQ. FT.
BASED UPON 150# TEST PRESSURE

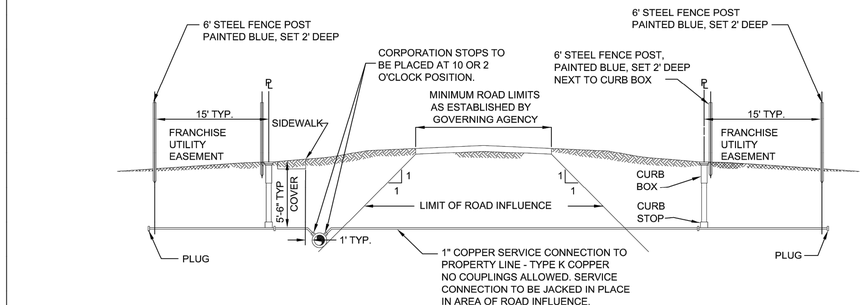
THRUST BLOCK



TYPICAL L TRENCH DETAIL HOUSE LEADS

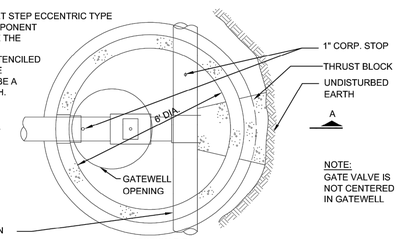


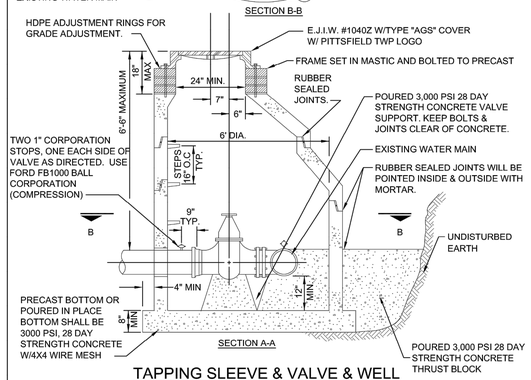
SEWER OR CULVERT CROSSING



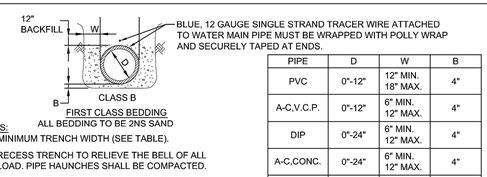
WATER MAIN CONNECTION

PRE-CAST CONCRETE MANHOLE
1. SECTIONS SHALL MEET ASTM C478.
2. ALL JOINTS MADE WATERTIGHT WITH RUBBER GASKET JOINTS
3. CONE TO BE OFFSET STEP ECCENTRIC TYPE
4. ALL MANHOLE COMPONENT PARTS SHALL HAVE THE NAME OF THE MANUFACTURER STENCILED ON THE INSIDE. THE LETTERING SHALL BE A MINIMUM OF 4" HIGH.





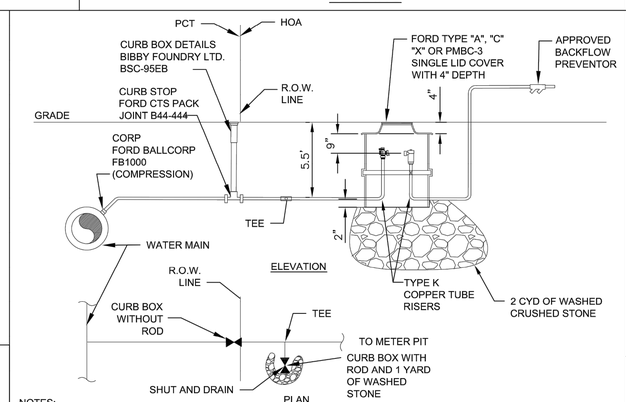
TAPPING SLEEVE & VALVE & WELL



PIPE	D	W	B
PVC	0"-12"	12" MIN. 18" MAX.	4"
A-C,V.C.P.	0"-12"	6" MIN. 12" MAX.	4"
DIP	0"-24"	6" MIN. 12" MAX.	4"
A-C,CONC.	0"-24"	6" MIN. 12" MAX.	4"
CONC. DIP	24" +	6" MIN. 12" MAX.	4"

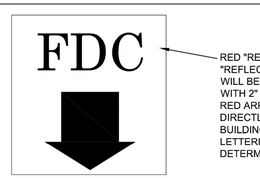
NOTES:
1. MINIMUM TRENCH WIDTH (SEE TABLE).
2. RECESS TRENCH TO RELIEVE THE BELL OF ALL LOAD. PIPE HAUNCHES SHALL BE COMPACTED.
3. 2NS BACKFILL TO DEPTH OF ONE FOOT ABOVE PIPE. TAMPED LAYERS NOT TO EXCEED 6" IN DEPTH. PLATE COMPACT ABOVE PIPE (ON 1st LIFT)
4. ALL PIPE TO BE PLACED AND JOINTED IN A DRY TRENCH AND LAID ACCURATELY TO LINE AND GRADE WITH BELLS UPHILL.
5. ALL CONCRETE ENCASEMENT AND CRADLING TO BE CLASS "A" CONCRETE.

BEDDING



NOTES:
1. SADDLE MAY BE REQUIRED ON MAIN BASED ON LEAD SIZE, MAIN SIZE, AND MAIN PRESSURE
2. ALL WATER MAIN TAPS AND COMPONENT PARTS SHALL BE APPROVED BY THE PITTSFIELD TOWNSHIP UTILITIES DEPARTMENT PRIOR TO INSTALLATION.
3. INSTALLATION SHALL BE INSPECTED AND APPROVED BY THE PITTSFIELD TOWNSHIP UTILITIES DEPARTMENT.

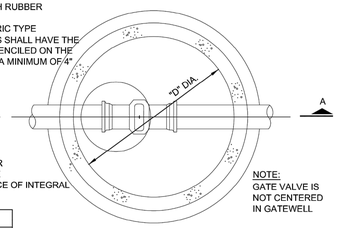
IRRIGATION METER PIT DETAIL



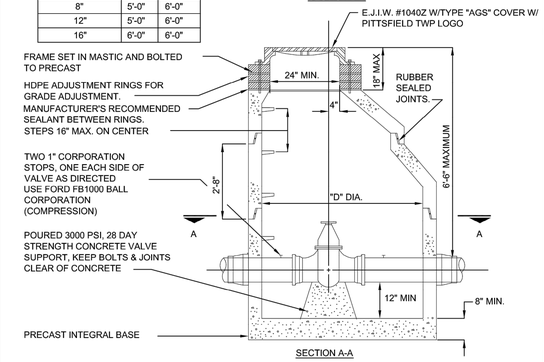
RED "REFLECTIVE" LETTERS WITH WHITE "REFLECTIVE" BACKGROUND. LETTERS WILL BE A MINIMUM OF 8" TALL BY 4" WIDE WITH 2" GIRTH, WITH AN 8" TALL 4" WIDE RED ARROW UNDER LETTERS POINTING DIRECTLY AT THE CONNECTION. TALLER BUILDINGS MAY REQUIRE LARGER LETTERING. SIGN SIZE AND LOCATION DETERMINED BY FIRE MARSHALL

FIRE DEPARTMENT CONNECTION LABEL DETAIL

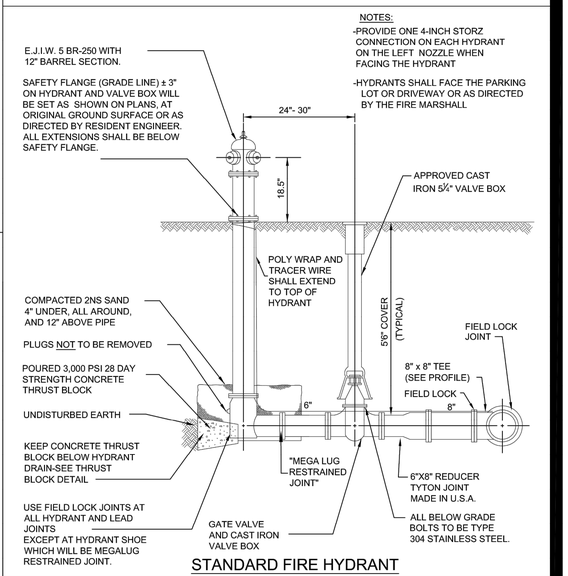
PRE-CAST CONCRETE MANHOLE
1. SECTIONS SHALL MEET ASTM C478.
2. ALL JOINTS MADE WATERTIGHT WITH RUBBER GASKET JOINTS
3. CONE TO BE OFFSET STEP ECCENTRIC TYPE
4. ALL MANHOLE COMPONENT PARTS SHALL HAVE THE NAME OF THE MANUFACTURER STENCILED ON THE INSIDE. THE LETTERING SHALL BE A MINIMUM OF 4" HIGH.
5. PROVIDE INTEGRAL BASE.
6. KOR-N-SEAL BOOTS OR APPROVED EQUAL TO BE INSTALLED AT PIPE PENETRATIONS.
7. WHERE GATE WELLS ARE CONSTRUCTED OVER EXISTING WATERMAIN, POURED IN PLACE OR PRECAST COOKIE AND DOGHOUSE STRUCTURES MY BE USED IN PLACE OF INTEGRAL BASE.



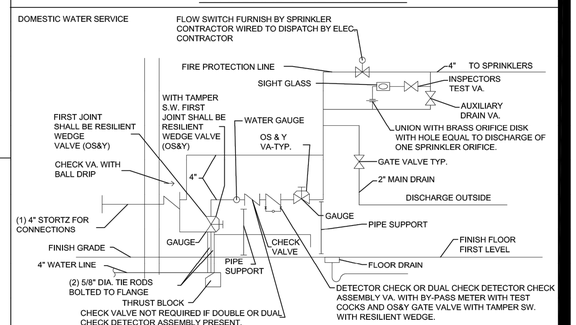
STRAIGHT THRU		TEE
VALVE SIZE	"D"	"D"
8"	5'-0"	6'-0"
12"	5'-0"	6'-0"
16"	6'-0"	6'-0"



STANDARD GATE VALVE & WELL



STANDARD FIRE HYDRANT



METER ROOM DETAIL

Pittsfield Charter Township
6201 W. Michigan Ave.
Ann Arbor, MI 48108–9721
48108–9721
Tel. 734.822.3101
www.pittsfield–mi.gov

Revision	By	Appd.	YY.MM.DD
UPDATES	MRH	DRW	14.01.24
FDC UPDATE	BWA	DRW	11.09.13
TWP REV	BWA	DRW	11.04.27
HYDRANT, MANHOLE UPDATE	BWA	DRW	10.10.25
UPDATES	TTN	DRW	10.01.20

Issued	By	Appd.	YY.MM.DD
File Name: W–01	BWA	DRW	07.10.01
	Dwn.	Chkd.	Dsgn. YY.MM.DD

Permit-Seal

Client/Project
PITTSFIELD TOWNSHIP

Pittsfield Township, Michigan

Title
WATER MAIN DETAILS

Project No. 2075001300

Scale NOT TO SCALE

Revision

1.00 GENERAL

1.01 DESCRIPTION

A. The CONTRACTOR shall furnish all labor, materials, and equipment required to construct a water main and necessary appurtenant work as herein specified. The water main shall be installed in the locations as shown on the Plans and shall meet all acceptance tests.

1.02 NOTIFICATION

A. CONTRACTOR shall notify the ENGINEER and the Pittsfield Township Utilities Department at (734) 882-2110, 24 hours prior to flushing or chlorination of the water main.

B. CONTRACTOR shall schedule bacteriological testing with the ENGINEER 48 hours prior.

C. CONTRACTOR shall notify the ENGINEER and the Pittsfield Township Utilities Department 48 hours prior to connecting to an existing water main.

1.03 SUBMITTALS

A. The CONTRACTOR shall submit shop drawings or data sheets for all pipe, manholes, manhole castings, pipe to manhole connections, valves, hydrants and the B-1 Poly Pig. The Contractor shall submit a certification letter for all pipe proposed on the project. The letters shall contain the following: Contractor name, project name, Township name, current date, certification of pipe provided and letterhead of the certifying company.

1.04 TESTING

A. General

1. CONTRACTOR shall furnish all equipment and personnel to conduct system acceptance tests as specified herein. All tests shall be conducted under the supervision of the ENGINEER. All water mains, branches and valves shall be subject to cleaning with a poly-pig, hydrostatic pressure testing, disinfection and bacteriological testing. No acceptance tests shall be conducted until the water main has been installed and backfilled for not less than 30 days. A copy of all test results shall be furnished to the ENGINEER.

2. Hydrostatic pressure testing must be performed in accordance with ANSI/AWWA C600. Disinfection and bacteriological testing must be performed in accordance with ANSI/AWWA C651.

3. CONTRACTOR shall furnish all material and labor to provide for an acceptable full size blow-off to flush the poly-pigs out of the main at the far end of the project not connected to the existing system.

4. Should the results of any test fail to meet the criteria established in this Specification, the CONTRACTOR shall, at his own expense, locate and repair the rejected section and retest until it is within the specified allowance.

5. Only Pittsfield Township personnel or the CONTRACTOR under direct supervision of Pittsfield Township personnel may fill or flush lines.

B. Preparation

1. After the pipe has been laid and backfilled as specified, the CONTRACTOR shall fill the line, or a valve section thereof, to be tested with water in such a manner as to expel all air from the pipe. This may be done through fire hydrants at the high points; or, if no hydrant is available at such point, the CONTRACTOR shall make the taps necessary to accomplish the expulsion of all air. At the close of the test, all taps shall be satisfactorily plugged with brass plugs.

C. Sequence

1. All water mains connected to an existing water system shall be flushed, swabbed, chlorinated and bacteriological tested prior to pressure testing. The sequence for acceptance testing shall be:

   a. Flushing with approved B-1 Poly-Pig
   b. Chlorination
   c. Flushing
   d. Bacteriological Testing
   e. Pressure Testing

2. Where mains can be totally isolated from the existing water system with airgaps, pressure testing shall precede chlorination and bacteriological testing. The sequence for acceptance testing shall be:

   a. Pressure Testing
   b. Connect to System
   c. Flushing with approved B-1 Poly Pig
   d. Chlorination
   e. Flushing
   f. Bacteriological Testing

3. If a hydrostatic pressure test fails, the chlorination and flushing process must be repeated after repairs to the system are completed.

D. Flushing

1. All flushing will be conducted by the TOWNSHIP with clean potable water until the water runs clear.

E. Chlorination

1. All new mains and pipe or any existing mains contaminated by the CONTRACTOR shall be chlorinated to a minimum residual chlorine concentration of fifty (50) parts per million with commercial liquid chlorine solution or approved equal. The chlorinated water shall be allowed to stand in the mains for 24 hours. The end of the 24-hour period the chlorinated water at all parts of the mains shall show a free available chlorine residual of not less than twenty-five (25) parts per million. If less than twenty-five (25) parts per million residual is shown at the end of the first 24 hours period, additional chlorine shall be added until a residual of not less than twenty-five (25) parts per million at all parts of the system is shown after a subsequent 24 hour period. The chlorinated water shall then be removed from the mains and the mains flushed with potable water for bacteriological testing. No flushing shall take place between the two required bacteriological testing.

F. Bacteriological Testing

1. The Pittsfield Township Utilities Department will take bacteriological samples of the water in the mains for analysis at two different times. The first samples will be taken 24 hours after the mains have been satisfactorily chlorinated, flushed and filled with potable water. The second sample will be taken 24 hours later. Each sample will be incubated for 48 hours. No flushing shall be done during or between tests, unless supervised and approved by ENGINEER. Two sets of safe consecutive bacteriological samples, collected at least 24 hours apart, must be obtained before placing the water main in service.

2. The CONTRACTOR shall provide a sufficient number of corporation cocks and copper tubing for taking samples. Samples shall not be collected from hoses or fire hydrants.

3. Bacteriological testing must begin on Mondays to allow Pittsfield Township personnel and the testing laboratory a full work week to conduct the testing.

G. Hydrostatic Pressure Testing

1. The CONTRACTOR shall pressure test sections of water main as sections of 2,000 feet or less unless otherwise authorized by the ENGINEER. When permitted to test lengths in excess of 2,000 feet, only the allowable leakage for 2,000 feet will be permitted.

2. All water mains shall be subjected to a hydrostatic pressure of 150 psi based on the elevation of the lowest point in the system. The main shall be maintained under the test pressure for a minimum continuous period of two (2) hours by pumping potable water into the line at frequent intervals. The volume of water so added shall be measured and considered to represent the leakage from the main. No pipeline installed will be accepted until the leakage measured is less than 0.092 gallons per inch diameter of the pipe per 1 hour per 1,000 feet.

3. In the event that the leakage exceeds the specified amount, the main shall be carefully inspected for leaks and repaired as necessary. Any cracked or defective pipe, fittings, valves or hydrants discovered shall be removed and replaced with sound material and the test repeated to the satisfaction of the ENGINEER.

4. If the CONTRACTOR chooses to pressure test against an existing valve he assumes the responsibility of meeting the leakage requirements. The CONTRACTOR may at his discretion provide a physical break and cutting in sleeve for pressure testing.

5. Temporary connections (jumpers) between existing water mains and the newly constructed system for testing purposes, shall include a reduced zone backflow preventer to prevent backflow and possible contamination of the public water.

H. Material Tests

1. The CONTRACTOR shall have test of pipe and strength made by an independent testing laboratory. Tests of up to 4 lengths of water main per hundred lengths may be required to show compliance with the Specifications. All pipe delivered to the job site shall be accompanied with a manufacturers certificate of compliance to the specifications.

2.00 PRODUCTS

A. All products shall be consistent with the current component part submittal sheet posted on the Township website.

2.01 PIPE AND FITTINGS

A. Ductile-iron pipe water main shall meet all the requirements of the latest revision of ANSI/AWWA C151/A21.51. Pipe shall be furnished in eighteen-foot or twenty-foot lengths, unless otherwise required. All joints, to include joints for fittings, valves and hydrants, must be of the push on joint type and compatible tyton joint gaskets. Ductile iron pipe must be designed in accordance with the latest revision of ANSI/AWWA C150/A21.50 to meet requirements for Pressure Class 350.

B. Ductile iron pipe and fittings shall be double-cement lined with an approved bituminous seal coat in accordance with ANSI/AWWA C104/A21.4.

C. Ductile iron fittings shall meet all the requirements of the latest revision of ANSI/AWWA C110/A21.10 for full body fittings and ANSI/AWWA C153/A21.53 for compact fittings for a minimum working pressure of 250 psi and be of the push-on joint type. Plugs, where shown on the plans, shall be solid mechanical joint plug type.

D. Restrained mechanical joints of the wedge action type shall use a follower gland and shall include a restraining mechanism which, when activated, impart multiple wedging action against the pipe, increasing its resistance as the pressure increases. Twist off nuts shall be used to insure proper actuating of the restraining device. Restrained mechanical joints for ductile iron pipe shall be Megalug, Series 1100, or approved equal. Mechanical joints shall be in conformity with the requirements of the latest revision of the ANSI AWWA C111/A21.11. Bolts and nuts must be type 304 stainless steel.

E. Push-on joints shall meet all requirements of ANSI/AWWA C111/A21.11. Push-on joints shall consist of a ductile-iron bell provided with a recess to receive a circular molder rubber gasket to effect the joint seal. A rubber gasket and sufficient lubricant to assemble the joint shall be furnished with each joint. The lubricant shall have no deleterious effect upon the color, taste or odor of potable water and shall not be corrosive to either the pipe or gasket. Pipe furnished with push-on type joints shall be equal in strength and leak tightness to pipe furnished with mechanical joints as specified when installed under identical conditions, and shall meet all other requirements of these specifications. In addition to the above requirements, the gasket and lubricant shall conform to the latest revision of ANSI/AWWA C111/A21.11. When it is necessary to utilize a locking mechanism for a push-on joint upstream or downstream of a restrained mechanical joint, field-lok gaskets or equal shall be utilized and shall be used in conformance with DIPRA Standards for restraint distance from a restrained mechanical joint fitting.

F. All pipe and fittings shall be manufactured in the United States of America.

G. The ENGINEER shall witness the delivery and unloading of all pipe and collect the appropriate manufacturer's certificate of compliance per Section 1.04 of this Specification.

2.02 VALVES

A. All valves installed under this Specification shall conform to the applicable requirements of ANSI/AWWA C500, C504 and C509 standards governing construction materials and workmanship. Each valve shall carry the name or trademark of the manufacturer. All valves shall have operating nuts that turn to the right (clockwise) to open.

B. Resilient-Seated Gate Valves

1. Resilient seated gate valves shall conform to the applicable requirements of ANSI/AWWA C515. Valves shall have a minimum working pressure of 250 psi. The gate shall be ductile iron encased in a bonded synthetic rubber to form resilient seating surfaces. Stem shall be bronze with a non-rising design and double o-ring packing. Joints shall be push-on type.

2. Resilient Seated Gate Valves shall be manufactured by American Flow Control or Clow.

C. Tapping Sleeves and Valves

1. Tapping sleeves shall be full length of heavy-duty stainless steel construction designed for use with the type of pipe to be tapped. Tapping sleeve flange and body shall be type 304 stainless steel. Bolts and nuts shall be 304 stainless steel. Gasket shall be full circumferential SBR compounded for water service. Tapping sleeve shall contain a test plug to assure seal prior to tapping. Tapping sleeve shall be JCM Industries 432; Romac Industries SST, Ford FAST, Powerseal 3490AS; Dresser 630 or equal.

2. Tapping valves shall meet the specifications for gate valves except that the valve shall have a flange compatible with the tapping sleeve.

3. The tapping sleeves and valves shall be subjected to a hydrostatic pressure of 200 psi. The sleeves and valves shall be maintained under pressure for a minimum continuous period of 5 minutes by pumping potable water into the sleeve. Upon any visual leakage observed by the ENGINEER, the tapping sleeve and valve shall be removed and replaced, and the test repeated at the CONTRACTOR's expense to the satisfaction of the ENGINEER.

D. Corporation Stops

1. Corporation stops used for insertion into mains shall be ball valve type. All stops shall have no lead brass bodies, keys, stem washers and nuts. Inlet threads shall conform to the latest revision of AWWA C800. The outlet connection shall be of the compression type to receive copper service pipe.

E. Valve Boxes

1. Valves boxes shall be 5-1/4-inch and be of cast-iron construction. They shall be of three-piece, screw-type adjustment design. All valve boxes shall be installed flush with the top of the proposed site grade. Cover shall be designed to be removed easily to provide access to the valve. The base shall not rest upon the valve assembly. Valve boxes shall be Tyler 6860 Item DD with number 6 base, or equal.

F. Valve Extensions

1. All gate valves with operating nuts at a distance greater than 6.5 feet below ground surface shall be provided with an extension stem. The length of the extension stem shall reach within 6.5 feet of the ground surface. Details of the extension system and method of installation shall be approved by the ENGINEER prior to installation.

G. Post Indicators and Valves

1. Post indicators, when specified, shall be American Flow Control series A240 or Clow series 2945A with aluminum plates indicating OPEN and SHUT. Post indicators shall open left.

2. Post indicator valves shall be American Flow Control Model 2500 or Clow model F-6120. All valves shall open left.

3. Post indicators and their corresponding valves must be made by the same manufacturer.

4. Bollards must be placed to protect post indicators, except as specified by the ENGINEER.

5. Bollards shall be 4-inch diameter galvanized schedule 40 steel posts 36 to 48 inches high with minimum depth of 24 inches. The posts shall be set in and filled with 3000 psi concrete. Bollards protecting hydrants and PIVs shall be painted red.

2.03 GATEWELLS

A. Gatewells shall conform to the latest revision of ASTM C478 for Precast Reinforced Concrete Manhole Sections. Section joints shall be rubber gasketed and shall conform to ASTM C990. Cone sections shall be eccentric, with an offset step configuration.

B. All gatewell components shall have the name of the manufacturer stenciled on the inside. The lettering shall be a minimum of 4-inches high.

C. Gatewells constructed over an existing water main shall have a doghouse mudded to an 8-inch thick cookie. All other gatewells shall have precast integral base sections.

D. Mortar for masonry or plastering outside of gatewells shall be made of one part of Portland Cement to two parts fine aggregate. Mortar materials and mixing shall correspond, in general, to those for concrete. All openings in gate wells shall be closed with brick and mortar in a manner that will make them watertight.

E. Gatewell steps shall be reinforced polypropylene coated steel. They shall be M.A. Industries models PS1-PF or PS1-B, or approved equal.

2.04 GATEWELL FRAMES AND COVERS

A. Gatewell frames and covers shall weigh not less than 350 lbs. Each frame and cover shall have machined bearing surfaces and shall be suitable notched for convenient removal of the cover.

B. Frames and covers shall be East Jordan Iron Works Model 1040Z frame with 1040 A cover. Each cover shall have the Pittsfield Township logo and the letters "PITTSFIELD TWP WATER" cast integrally into the cover.

C. All frames and covers shall be coated at the place of manufacturer with coal tar pitch varnish or other asphaltum coating approved by the ENGINEER.

2.05 GATEWELL CONNECTIONS

A. Water pipe to gate well connections shall be through a watertight flexible pipe-to-manhole connector, which shall be securely clamped into a core-drilled port. Pipe ports shall be core-drilled at the point of manufacturer and shall be accurately located within 1/2-inch of the proposed water main centerline. Flexible pipe-to-manhole connectors shall meet the requirements of ASTM C923 and shall be NPC, Kor-N-Seal, or equal.

B. All non-rubber components including wedges, bands and pipe clamps shall be stainless steel.

2.06 GATEWELL ADJUSTMENTS

A. All final grade adjustment of gatewell cover and frame assemblies shall be completed utilizing injection molded High Density Polyethylene (HDPE) adjustment rings as manufactured by Ladtech, Inc., or approved equal. The adjustment rings shall be manufactured from polyethylene plastic meeting the requirements of ASTM D4976. Brick adjustments are not acceptable.

B. All adjustment for matching road grade shall be made utilizing a molded indexed slope ring.

C. Each adjustment ring shall be sealed with a 3/16 to 1/4-inch bead of butyl rubber sealant per the manufacturer's instructions. Sealant shall meet the requirements of ASTM C990.

D. All castings and adjustment rings shall be securely fastened to the cone of the structure with four 3/8-inch threaded rods. The rods shall be galvanized or stainless steel anchored to the structure with Redhead Trubolt concrete anchors, or equal. Stainless steel or galvanized nuts and washers shall be used to attach the casting.

E. When the depth of the gate well requires an adjustment greater than the maximum allowed, the CONTRACTOR shall provide additional pre-cast gate well barrel sections required to maintain acceptable chimney heights.

2.07 HYDRANTS

A. Fire hydrants shall comply with the latest revision of ANSI/AWWA C502. Hydrants shall be compression type to open with the pressure. They shall have a 5-1/4" valve opening and 6" mechanical joint inlet. Hydrants shall have two 3-1/2" (4.05" O.D.) pumper connections with National Standard 7-1/2 threads per inch. All hydrants shall have City of Ann Arbor standard thread pattern.

B. Fire hydrants shall have an inside barrel dimension of not less than 7.375" I.D. from top to bottom. The 1-1/8" pentagon operating nut shall open left (counter clockwise).

C. All nozzles shall be on a removable head with a flange so that they may be rotated by changing the position of the flange.

D. Hydrant shall be fully bronze mounted, including top of the operating stem where it passes through the double o-ring seal in the bronze packing gland. The forged operating stem in the base and the valve seat shall also be of bronze. The molded valve shall be of composition rubber and the cast iron valve clamps shall be packed with o-ring seals and held tight to the stem by a threaded bronze hex retainer ring and threaded bronze locknut, anchored with set screws.

E. Hydrant shall be designed for 150 psi working pressure and tested to 300 psi. Those portions of the hydrant above grade shall have two coats of red enamel. All unpainted surfaces shall have two coats of coal tar pitch varnish.

F. The hydrants shall be EJIW WaterMaster 5BR-250 with mechanical joint connections and break flange barrel with standard head.

G. Hydrant bolts located below grade shall be type 304 stainless steel

H. All hydrants shall have a 4" Harrington Integral Hydra-Storz (HIHS) adaptor. The HIHS shall meet the requirements of AWWA C502 regarding material and pressure testing. Stortz nozzle shall have a brass metal face and hard anodized ramps and lugs. The aluminum finish shall be hardcoat anodized to Mil-A-8625f, type 3 dark gray. The adapter shall be made from forged or extruded 6061-T6 aluminum.

I. The blind cap shall have hard anodized aluminum Storz ramps and lugs, made of forged or extruded 6061-T6 aluminum. the cap shall be equipped with suction seal. The cap shall be connected to the adapter or the hydrant with 0.125 vinyl coated aircraft cable.

J. Fire hydrant extensions shall be manufactured by the hydrant manufacturer for use with the model hydrant being installed.

K. Hydrants adjacent to truck routes on commercial developments shall be protected by bollards.

2.08 SERVICE LEADS

A. Pipe for service leads 1-inch to 2-inch shall be soft annealed Type K copper. Service leads 4-inch to 8-inch shall be Pressure Class 350 Ductile Iron, Double cement lined.

B. Curb Stops

1. Curb stops used for service connections shall be ball valve type. All parts shall be no lead brass. Both the inlet and outlet connections shall be of the compression type to receive copper service pipe. Curb stops shall be consistent with the most current shop drawing checklist posted on the Township website.

C. Curb Boxes

1. Curb boxes shall be the Bibby Screw Style V010 with S169 top, V201 bottom, V223 extention, and V240 water cover . All curb boxes shall be coated inside and out with a tar base enamel. The minimum bury shall be 5'-0" (60") and the maximum 6' (72"). Curb boxes shall be consistent with the most current shop drawing checklist posted on the Township website.

D. Couplings

1. Couplings used for service connections shall be located outside the pavement and more than 10 feet from any building wherever possible. They shall have a three part union, and both connections shall be of the compression type to receive copper service pipe. All parts shall be no lead brass..

2. All service connections between two copper service pipes (two-inch or less in diameter) located under the pavement or within 10 feet of a building shall be connected using wrought copper, solder-sweat type couplings conforming to ASME B16.18 or ASME B16.22. Fittings shall bear made in USA labels. Joining of copper piping shall be a solder-sweat connection using lead free Silfos. The use of 95-5, Tin-Antimony or equivalent solders will not be allowed.

2.09 TRACER WIRE

A. Tracer wire to be used on open cut pipe shall be AWG #12 single strand copper with blue 30 mil HDPE insulation. Connections shall be made using 3M DBR-6 wire connectors, or equal.

2.10 POLYETHYLENE ENCASEMENT

A. All ductile iron pipe and fittings must be polyethylene encased. In addition, the initial 24-inches of copper service lead must be encased from the corporation stop. Polyethylene encasement must be manufactured in accordance with the requirements of the latest revision of ANSI/AWWA C105/A21.5.

B. Polyethylene Encasement shall be black linear low-density polyethylene with a minimum thickness of 8 mils.

C. The wrap shall overlap the joint by 12 inches to either side and be secured to the pipe with polyethylene adhesive tape.

3.00 EXECUTION

3.01 EXCAVATION AND BACKFILL

A. All excavation and backfill shall conform to the Earthwork specification.

3.02 PIPE INSTALLATION

A. The installation of ductile iron water main must conform to the requirements of ANSI/AWWA C600.

B. Any pipe damaged in transport or handling shall be rejected and removed from the site of the work.

C. Before lowering in the trench, and while suspended, each pipe and fitting shall be inspected for defects. Defective, damaged or unsound pipe shall immediately be removed from the construction site. The interior of each pipe shall be inspected for cleanness and cleared of all dirt and foreign matter before being lowered into the trench.

D. In handling and placing ductile iron pipe and fittings, no metal shall be used in contact with the inside of the pipe to fit or support the pipe. The pipe shall be moved only through the use of belt slings or automatic release type pipe tongs. Care shall be taken not to injure the pipe or pipe coating, and no damaged or imperfect pipe shall be used in the work except that minor damage to pipe coating may be repaired subject to the review of the ENGINEER.

E. Unless otherwise directed, pipe shall be laid with bell ends facing in the direction of laying. After a length of pipe is placed in the trench, the spigot shall be centered in the bell of the adjacent pipe; the pipe shoved into position and brought to a true alignment. It will then be secured with sand backfill tamped under and on each side of the pipe, except at bell holes. No earth or other foreign matter shall be allowed to enter the joint space.

F. All excavation and backfill above the pipe shall conform to specifications under Earthwork and as shown on the Drawings.

G. A minimum of 18-inches vertical clearance shall be provided between the water main and any existing underground facility, unless otherwise approved by the ENGINEER. Whenever a main is installed under any existing utility line such as gas, buried electric power, telephone line, sewer or water, provisions shall be made to properly support or distribute any concentrated load to avoid settlement and possible failure of either main. Such provisions shall consist of concrete bedding of the main, complete concrete encasement, or some other method as shown on the plans. Water mains passing under sewers, in addition, shall be protected by providing:

1. A vertical separation of at least 18-inches between the bottom of the sewer and the top of the water main.

2. Adequate structural support for the sewer to prevent excessive deflection of joints and settlement of the sewer about the water main; i.e., a concrete saddle under the pipe with a span length extending to undistributed earth bearing.

H. Water mains shall be installed at least 10 feet horizontally from any existing or proposed gravity sanitary or storm sewer, septic tank, or subsoil treatment system. The distance shall be measured edge to edge.

I. In assembly of push-on or shove type joints, the bell socket recess and the gasket shall be wiped clean and the gasket placed properly in position. A thin film of lubricant shall then be applied to the surface of the gasket to come into contact with the entering pipe. The plain end of the entering pipe shall be cleaned and then entered and forced home to the base of the socket.

J. Where necessary to cut pipe, cutting shall be done with approved tools and cut ends of pipe shall be square and regular. Cutting shall be done in a manner to avoid damage to lining and coating. Minor damage may be repaired subject to review of the ENGINEER.

K. To prevent trench water from entering the pipe, joints, which for any reason may not be completed as the pipe is laid, shall be thoroughly packed with approved material, in a manner to make them watertight. Open ends of fittings shall be tightly closed with approved plugs and well packed, as shall the end of the last pipe laid whenever work is not in progress.

L. Each pipe shall be laid accurately to the line and grade shown on the Plans. Wherever deflections at joints are required by changes in grade or alignment or to plumb valve stems, the deflection at any bell and spigot joint shall not exceed that which will cause the spigot end of pipe to be away from home in the bell of the adjacent pipe a distance of 1/4 inch at the point of greatest opening.

M. The deflection at any mechanical joint shall not exceed three-quarters of the maximum deflection recommended by the manufacturer or 3 degrees, whichever is more conservative of the joint used.

N. The CONTRACTOR shall not be entitled to any additional compensation because depth is more than specified at certain locations or due to clearances at manholes, or due to unforeseen obstacles, or occasioned in order to avoid undue changes in grade.

O. Pipe shall be laid at depths to provide minimum cover of 5' - 6" over the top of the pipe unless otherwise noted on the Drawings or elsewhere in these specifications.

3.03 GATE VALVES AND WELLS

A. All pre-cast section joints and lift holes shall be pointed and plugged, inside and outside, with mortar.

B. Gate valves shall be of the size and installed at the location as shown on the plans. They shall be set square with the line of the main, and unless otherwise directed by the Township ENGINEER, all gate valves shall be set with stems plumb. At each side of gate valve, the CONTRACTOR shall furnish and install a 1-inch corporation stop on the main as shown on the Standard Details.

C. All gate valves with operating nuts at a distance greater than 6.5 feet below ground surface shall be provided with an extension stem.

3.04 HYDRANTS

A. Fire hydrants shall be constructed in accordance with the details shown on the plans. Finish grade level to center of nozzle caps shall measure between 24 and 30 inches. A maximum of one hydrant barrel extension and one operating stem extension may be used to accommodate changes in grade. Under no conditions shall extended hydrant have more than one coupling in the operating stem. Pumper connections shall point toward the street.

B. Fire hydrants shall be installed with barrel vertical and properly based. Concrete thrust blocks shall be placed behind the hydrant, tee, and every bend. Care should be taken to insure the drain holes on the hydrant are not plugged by the thrust blocks. Hydrant shall be set in 1 yard of coarse gravel for drainage purposes. If ground water is encountered, the drain hole shall be plugged as directed by the manufacturer. The backfill shall be sand thoroughly tamped around the hydrant and valve box in 1 ft layers.

C. Fire hydrant and gate valve shall be set apart 24 inches. Gate valves and valve box shall be as specified under the valve paragraphs of this section.

D. Hydrant leads shall have a minimum of 5.5 feet of cover in all areas, including crossings through ditch sections.

E. Hydrants shall be carefully plumbed, braced and backfilled so they remain plumb.

F. All grade, facing, and vertical alignment adjustment of hydrants shall be completed prior to pressure testing and charging of the hydrants.

G. All hydrants shall be cleaned and painted with a rust inhibitive, oil base paint such as "rustoleum" or approved equal to the Township's color code prior to acceptance.

H. The lubricant reservoirs in all hydrants having such construction shall be filled with a lubricant acceptable to the Michigan Department of Environmental Quality and recommended by the hydrant manufacturer.

I. Backfilling around fire hydrants shall be carefully tamped sand in 12-inch layers from the centerline of the lead main to a height of 1-foot below finished grade.

J. CONTRACTOR shall place burlap sack or equivalent material over the hydrant nozzles after installation.

K. Fire hydrant nozzles shall be aligned as required by the Township Fire Marshal.

L. Fire hydrant extensions shall be provided as necessary so that the safety flange is located at or above surface grade.

3.05 TRACER WIRE

A. Tracer wire shall be installed along the top of all water mains. For directional drilling, the tracer wire shall be installed at the same time as the pipe. For open cut construction, the tracer wire shall be installed at a height of not more than 6 inches above the main line pipe or service leads. Wire shall be extended to all hydrants, blow-offs, dead ends, service leads and post indicator valves. Tracer wire shall be brought to grade, leaving enough excess material to avoid loss or damage to the wire during construction and subsequent activities. Wire shall be trimmed to finish grade following completion of the landscaping.

B. When tracer wire is to be run along short offsets (less than 20 feet), a loop of wire shall be utilized to loop to the end of the offset, bring the loop to grade and terminate it in an approved manner. For service leads and offsets of more than 20 feet in length, or installed by directional drilling method, a splice may be utilized to make the connection at the main. The tracer wire shall then be installed and terminated in an approved manner.

C. Tracer wire terminations shall be made by one of the following methods:

1. Tracer wire shall be terminated at hydrants by tying off the wire at the head flange, leaving excess material for future trimming following landscape activities.

2. Terminations at valve/curb boxes, post indicators, valves and blow-offs shall be made with 2 wraps of wire at grade around the box or pipe, leaving excess material for future trimming following landscaping.

3. Gatewell terminations shall be made by running the tracer wire through the pipe opening in the wall, down to and across the floor to the steps, up the wall and secure to the top step leaving the stub accessible at the casting. Wire shall be run through the gatewell such that it does not create a hazard.

4. Terminations at existing water mains without tracer wire shall be made at the nearest hydrant or gate well as outlined above. If no hydrant or gatewell is available, an upper section of valve box shall be installed with the tracer wire stubbed up inside

D. When connections are made to existing water mains which do not have tracer wire, the following method most applicable to field conditions shall be used.

1. When connection is made at/near a valve or hydrant, the connection shall be made in the same manner as the termination at said structures in Item C(2) above.

2. When connection takes place in a gatewell, the same procedure shall be used as in termination at a gatewell (see Item C(3) above).

3. If no valve or hydrant is available, the upper section only of a valve box shall be set with the tracer wire stubbed up inside.

3.06 POLYETHYLENE ENCASEMENT

A. The polyethylene encasement must be installed in accordance with the specifications and requirements of ANSI/AWWA C105/A21.5. For open cut applications a single wrap is required, and for directional drill applications a double wrap is required.

B. The polyethylene encasement must be taped and overlapped at pipe joints and must be taped in a spiral configuration along the length of the pipe.

3.07 CONNECTION TO EXISTING MAINS

A. All connections to existing water mains shall be made at the locations as shown on the plans.

B. All valves shall be operated by the Pittsfield Township Utilities Department.

C. Prior to beginning construction of the final connections, the CONTRACTOR shall provide sequence of all final connections to the existing system and coordinate a meeting between the ENGINEER, OWNER and CONTRACTOR in the field to review the procedure.

D. When making a dry connection to an existing main, the existing main to which a connection is to be made shall be isolated by the closing of the necessary existing valves, and the water from the existing main shall then be pumped out or removed by other means so the connection may be made in the dry. After the connection has been acceptably made, the portion of the new line to the nearest valve shall be satisfactorily tested and disinfected, along with the drained portion of the existing water main, before the isolated existing main is placed back in service, except as the ENGINEER may otherwise direct. In as much as residents served by this isolated main will be temporarily out of water during this period, the work shall be executed as rapidly as possible, and the time of, and the procedure in, making such connections shall be subject to the review of the ENGINEER. Such work may be required to be done at night in order to minimize inconvenience of water users. The CONTRACTOR shall not be entitled to any additional compensation because of night work or other special requirements in work under this section.

E. The CONTRACTOR shall make particular effort, prior to bidding, to ascertain whether or not valves in the existing mains to be connected to the new mains are so located as to provide isolation. If valves are not found to be adequate, then the CONTRACTOR shall utilize other means to make the connections with a minimum of interruption to service.

F. When making a wet tap connection to an existing main, a tapping sleeve designed for the type of pipe being tapped shall be utilized and the tap shall be made in accordance with the manufacturer of the tapping equipment.

G. Wherever adapters are required to properly connect the pipe with existing pipe or other material or manufacturer, the nominal I.D. of adapters shall be the same size as the nominal diameter of pipe connected thereto. Adapters shall also be furnished and used as required by the manufacturer for connection to fittings.

3.08 BEDDING

A. Ductile iron pipes shall be fully enclosed in polywrap and laid on a compacted sand cushion, 4 inches thick. Sand shall conform to fine aggregate 2NS as defined in 2003 MDOT, Section 902.

B. 2NS sand bedding material shall be placed around and above the main to a height of 12 inches above the main.

C. Sand shall be compacted on top of the 12-inches of sand above the pipe to not less than 95 percent of the maximum unit density as determined at optimum moisture content.

PITTSFIELD CHARTER TOWNSHIP

Pittsfield Charter Township
6201 W. Michigan Ave.
Ann Arbor, MI 48108-9721
48108-9721
Tel. 734.822.3101
www.pittsfield-mi.gov

Revision	By	Appd.	YY.MM.DD
SPEC. UPDATES	MRH	DRW	14.01.24
TWP REV	BWA	DRW	11.04.27
SPEC. UPDATES	BWA	DRW	10.10.25
SPEC. UPDATES	TTN	DRW	10.01.19

Issued	By	Appd.	YY.MM.DD
File Name: W-02	BWA	DRW	07.10.01
Permit-Seal	Dwn.	Chkd.	Dsgn. YY.MM.DD

Client/Project
PITTSFIELD TOWNSHIP

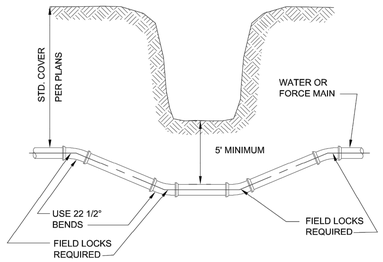
Pittsfield Township, Michigan

Title
WATER MAIN SPECIFICATIONS

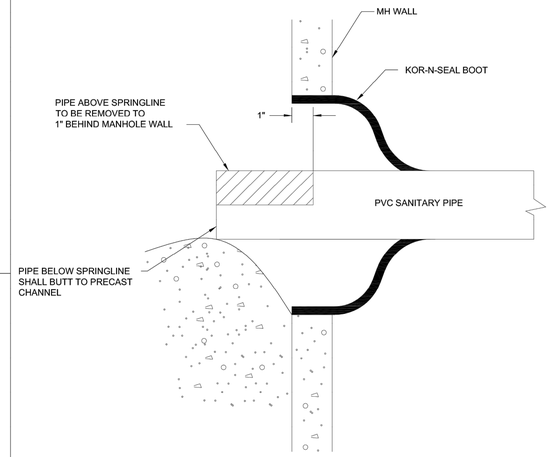
Project No.
2075001300

Scale

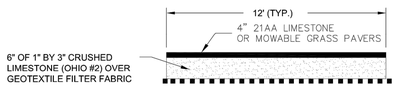
Revision



DITCH & STREAM CROSSING



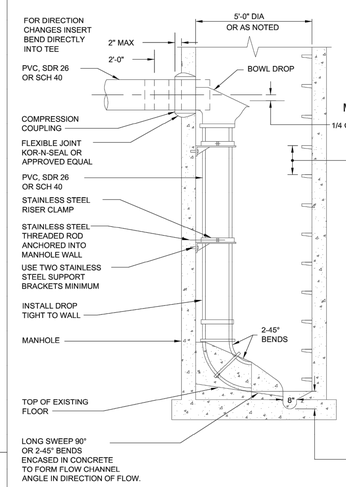
SANITARY PIPE PENETRATION

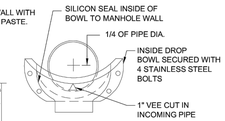


SANITARY SEWER ACCESS PATH

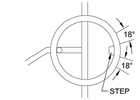
NOTES:

1. SECURE DROP PIPE TO MANHOLE WALL WITH RELINER-DURAN, INC STAINLESS STEEL ADJUSTABLE CLAMPING BRACKETS OR EQUAL.
2. ATTACH THE DROP BOWL & EACH CLAMPING BRACKET TO THE MANHOLE WALL WITH 3/8" x 3 3/4" RAMSET/RED HEAD BOLTS HELD INPLACE WITH 2 STAGE EPOXY PASTE.





DROP BOWL
MOUNTING POSITION



DROP SHALL
BE NO CLOSER
THAN 18" FROM
STEP

SIZE

LINE	LINE
4"	4"
6"	6"
8"	8"
10"	8"

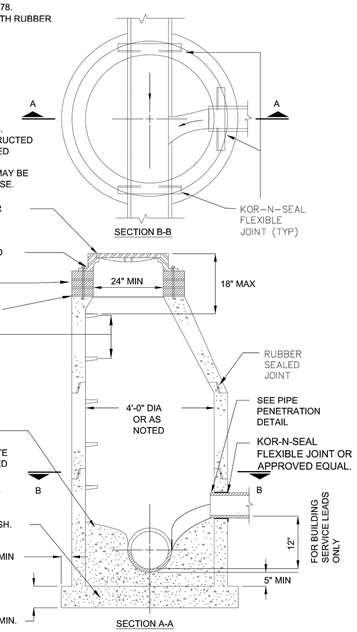
MH DIA.	MAX. DROPS
4'	2-6"
5'	4-6"
5'	2-8"
6'	3-8"

NO UTILITY STRUCTURES (ie. MANHOLES, CURB BOXES etc.) SHALL BE PLACED IN ANY DRIVEWAY OR SIDEWALK

INTERIOR DROP SANITARY MANHOLE

PRE-CAST CONCRETE MANHOLE

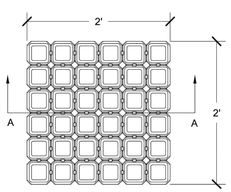
1. SECTIONS SHALL MEET ASTM C478.
2. ALL JOINTS MADE WATERTIGHT WITH RUBBER GASKET JOINTS
3. CONE TO BE ECCENTRIC TYPE
4. ALL MANHOLE COMPONENT PARTS SHALL HAVE THE NAME OF THE MANUFACTURER STENCILED ON THE INSIDE. THE LETTERING SHALL BE A MINIMUM OF 4" HIGH.
5. PROVIDE INTEGRAL BASE WITH PRECAST CONCRETE CHANNELS.
6. WHERE MANHOLES ARE CONSTRUCTED OVER EXISTING SEWERS, POURED IN PLACE OR PRECAST COOKIE AND DOGHOUSE STRUCTURES MAY BE USED IN PLACE OF INTEGRAL BASE.



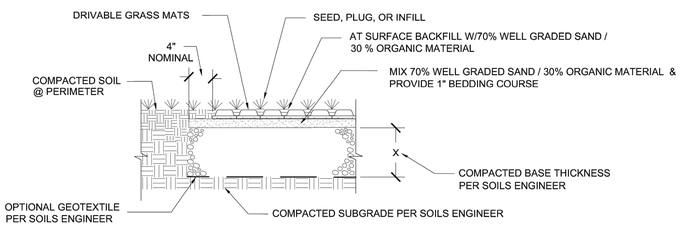
NO UTILITY STRUCTURES (ie. MANHOLES, CURB BOXES etc.) SHALL BE PLACED IN ANY DRIVEWAY OR SIDEWALK

SANITARY MANHOLE

NOTE:
FOR STORMWATER MANAGEMENT APPLICATIONS INCLUDING STORAGE AND INFILTRATION, ALTERNATE INFILLS, BASE MATERIAL, AND DRAINAGE MAY BE REQUIRED

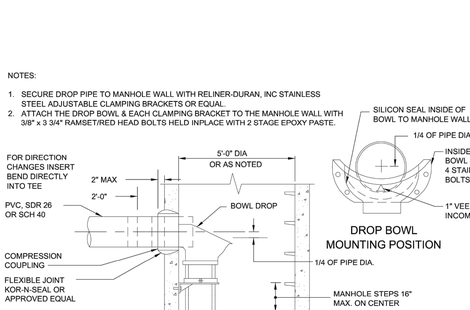


PLAN VIEW

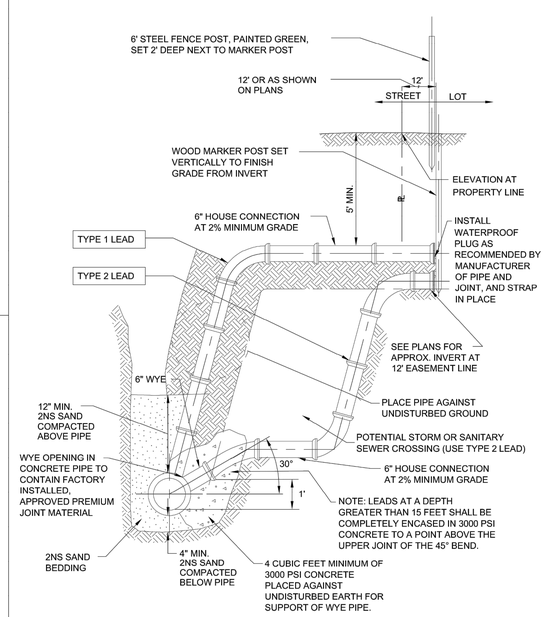


SECTION A-A

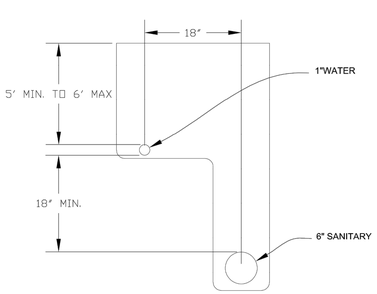
TYPICAL HEAVY TRAFFIC DRIVABLE GRASS DETAIL



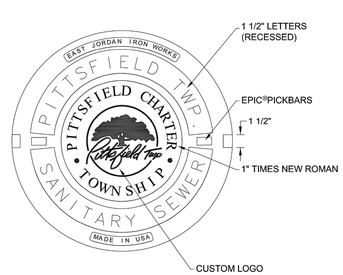
SANITARY SEWER CLEANOUT



SANITARY SEWER SERVICE & RISER CONNECTION DETAIL

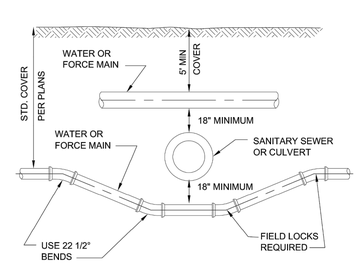


TYPICAL L TRENCH DETAIL HOUSE LEADS



EAST JORDAN IRON WORKS 1040 Z BOLT DOWN FRAME
EAST JORDAN IRON WORKS 1040 AGS COVER

COVER DETAIL



SEWER OR CULVERT CROSSING

Pittsfield Charter Township
6201 W. Michigan Ave.
Ann Arbor, MI 48108-9721
48108-9721
Tel. 734.822.3101
www.pittsfield-mi.gov

Revision	By	Appd.	YY.MM.DD
COVER DETAIL UPDATE	MRH	DRW	14.01.24
TWP REV	BWA	DRW	11.04.27
MANHOLE UPDATES	BWA	DRW	10.10.25
UPDATES	TTN	DRW	10.01.20

Issued	By	Appd.	YY.MM.DD
File Name: SS-01	BWA	DRW	07.10.01
	Dwn.	Chkd.	Dsgn. YY.MM.DD

Permit-Seal

Client/Project
PITTSFIELD TOWNSHIP

Pittsfield Township, Michigan

Title
SANITARY SEWER DETAILS

Project No.
2075001300

Scale
NOT TO SCALE

Revision

SANITARY SEWER AND MANHOLES

1.00 GENERAL

1.01 DESCRIPTION

A. The CONTRACTOR shall furnish all labor, tools, equipment and materials to construct all sanitary sewers, manholes and necessary appurtenant work as herein specified. No sewers shall be accepted until the sewer system has passed the system acceptance tests.

1.02 TESTING

A. General

1. The CONTRACTOR shall furnish all equip\-ment and personnel to conduct system acceptance tests as specified herein on all completed sewers. All tests shall be conducted under the supervision of the ENGINEER. No acceptance tests shall be conducted until the entire sewer system is constructed and has been installed for not less than 30 days.

2. The CONTRACTOR may desire to make an air test prior to backfill for his own purposes but the line acceptance tests shall be conducted after backfilling or extensions.

3. All sewer lines shall be televised while running enough water through the line to be visible at the next downstream manhole.

4. All sewer lines shall be checked for alignment.

5. All manholes shall be tested for leakage. All PVC lines shall be tested for deflection.

6. Sewer pipe 30 inches and smaller shall be air tested. Sewer pipe larger than 30 inches shall be tested by either infiltration or exfiltration and shall be tested in lengths of 1600 feet or less.

7. Should the results of any test fail to meet the criteria established in this Specification, the CONTRACTOR shall, at his own expense, locate and repair rejected section and retest until it is within specified allowance.

B. Test for Leakage - Air Test

1. Section 33-95 (pg 30-6) 2004-Ten State Standards.

2. After a manhole-to-manhole section of line has been backfilled and cleaned, it shall be plugged at each manhole with pneumatic plugs inflated to 35 psig internal pressure. The design of the pneumatic plugs shall be such that they will hold against the line test pressure without requiring external blocking or bracing.

3. There shall be three (3) hose connections to the pneumatic plug. One hose shall be used only for inflation of the pneumatic plug. The second hose shall be used for continuously reading the air pressure rise in the sealed line. The third hose shall be used only for introducing low pressure air into the sealed line.

4. There shall be a 0-30 psig gauge for reading the internal pressure of the line being tested. Calibrations from the 1-10 psig range shall be in tenths of lbs (not ounces) and this 0-10 portion shall cover 90% of the complete dial range.

5. Low pressure air shall be introduced into the sealed line until the internal air pressure reaches 4.0 psig greater than the average back pressure of any ground water pressure that may be over the pipe. At least two (2) minutes shall be allowed for the air pressure to stabilize. After the stabilization period, the third hose shall be disconnected.

6. The portion of line being tested shall be accepted if the portion under test meets the following conditions.

a. DI, and RCP Pipes

(1) The time requirement for the pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any ground water that may be over the pipe) shall not be less than the time given in the following table:

Pipe	Min. Holding Time Seconds/100 ft. Pipe
4-inch	18
6-inch	42
8-inch	72
10-inch	90
12-inch	108
15-inch	126
18-inch	144
21-inch	180
24-inch	216
27-inch	252
30-inch	288

(2) In areas where ground water is known to exist, the CONTRACTOR shall install a 1/2-inch diameter capped pipe nipple, approximately 10 inches long, through the manhole wall on top of one of the sewer lines entering the manhole. This shall be done at the time the sewer line is installed. Immediately prior to the performance of the line acceptance test, the ground water level shall be determined by removing the pipe cap, blowing air through the pipe nipple into the ground so as to clear it, and then connecting a clear plastic tube to the pipe nipple. The hose shall be held vertically and a measurement of the height in feet of water shall be taken after the water stops rising in this plastic tube. The height in feet shall be divided by 2.3 to establish the lbs of pressure that will be added to all readings. For example, if the height of water is 11-1/2 ft, then the added pressure will be 5 psig. This makes the 3.5 psig to be 8.5 psig, and the 2.5 psig to be 7.5 psig. The 1 lb allowable drop and the timing remains the same.

a. PVC Pipe

(1) The time requirement for the pressure to decrease from 3.5 to 3.O psig (greater than the average back pressure of any ground water that may be over the pipe) shall not be less than that shown in the following table:

Pipe Size (inches)	Holding Time (seconds)	Minimum Holding Time (seconds)
4-inch	0.190xL	113
6-inch	0.427xL	170
8-inch	0.760xL	227
10-inch	1.187xL	283
12-inch	1.709xL	340
15-inch	2.671xL	425
18-inch	3.846xL	512

(2) If any section of the sewer fails to meet this requirement, the CONTRACTOR shall perform a television inspection of the faulty section and repair or replace at his own expense all defective materials and/or workmanship to the satisfaction of the ENGINEER. The test procedure shall be repeated until the results are acceptable.

C. Test for Infiltration

1. Sewer pipe over 18 inches shall be tested to measure the infiltration of ground water. If the measured leakage exceeds 100 gallons per inch diameter per mile of pipe per 24 hr period, the CONTRACTOR shall locate the points of excessive leakage and make the necessary repairs at his own expense.

2. In the event the line does not pass the infiltration test as stated above, the test shall be repeated after suitable repairs have been completed.

D. Test for Exfiltration

1. Where the ground water provides less than a 2 ft head on the sewer, an exfiltration test shall be conducted by filling the sewer with water to a 4 ft head or 4 ft above the ground water level, whichever is greater. The allowable water loss shall be 100 gal/in./mi/day as calculated above for infiltration.

2. After the sewer has been filled with water, 4 hrs time shall be allowed for water absorption by the pipe before exfiltration tests are initiated.

3. For the purpose of establishing the 4 ft test head, the head shall be measured from the center of the sewer pipe at the midpoint of the test section length. This procedure shall be used for both infiltration and exfiltration tests.

E. Test for Manhole Leakage

1. All manholes shall be tested for leakage by using plugs on inleting-outleting sewers, and filling the manholes with water to the top of the man\-hole. Four hours shall be allowed for water absorption by the manhole before testing is initiated. Allowable exfiltration for 48-inch diameter manholes shall be 2 gallons per foot of depth per day.

F. Test for Alignment

1. All sewers shall be laid accurately to the line and grade designed by the ENGINEER. The sewers will be tested for alignment by shining a light through the pipe at a manhole and viewing the light from an adjacent manhole. Any section of sewer in which a light cannot be seen from one manhole to the next shall be corrected to the satisfaction of the ENGINEER to pass this test.

G. Test for Deflection of PVC Pipe

1. PVC pipe sewers shall be installed in such a manner that the initial deflection of the conduit shall conform to the latest revision of ASTM D-3034.

2. Deflection of PVC pipe shall be tested by pulling a rigid pig or equivalent through the pipe. The pig shall be constructed in accordance with the following table of maximum outside diameters and shall be submitted to the ENGINEER for review before testing is initiated.

Pipe I.D.	Pig O.D.
6 inches	5.33 inches
8 inches	7.11 inches
10 inches	8.87 inches
12 inches	10.55 inches
15 inches	12.90 inches
18 inches	15.74 inches

3. The pig shall be drawn by hand through the pipe from manhole to manhole. Any portion of pipe through which the pig passes freely shall be deemed to have passed the deflection test. Sections of pipe through which the pig does not pass shall be located, un\-covered and the pipe zone bedding improved and backfilled by the CONTRACTOR at his own expense. The pipe shall then be retested before acceptance is granted.

H. Material Tests

1. The CONTRACTOR shall have tests of pipe and strength made by an independent testing laboratory. Tests of up to 4 lengths of sewer pipe per hundred lengths may be required to show compliance with the Specifications. All pipe delivered to the job site shall be accompanied with a manufacturer's certificate of compliance to the Specifications.

1.03 SUBMITTALS

A. The CONTRACTOR shall submit shop drawings or data sheets for all pipe, manholes, manhole castings, pipe to manhole connections, and valves. The Contractor shall submit certification letter for all pipe proposed on the project. The letters shall contain the following: Contractor name, project name, township name, current date, certification of pipe provided and letterhead of the certifying company.

2.00 PRODUCTS

2.01 SEWER PIPE

A. Pipe for sewer 24-inch diameter and smaller shall be polyvinyl chloride (PVC). Pipe for 30-inch diameter and larger shall be PVC truss pipe. Ductile iron pipe and reinforced concrete pipe shall be used as specified by the ENGINEER.

B. Pipe for service leads 4 though 8 inches in diameter shall be polyvinyl chloride (PVC).

C. Reinforced concrete pipe shall be no less than the latest revision of ASTM C76, with the class designation as shown on the Plans or in the Prol\-posal.

D. PVC pipe 4 inches through 15 inches in diameter shall meet or exceed all of the requirements of the current ASTM D-3034 SDR-26 polyvinyl chloride sewer pipe and fittings. 18-inch diameter PVC pipe shall meet or exceed all the requirements of the current ASTM F-794 SDR 26 polyvinyl chloride sewer pipe and fittings. Samples of pipe and physical and chemical data sheets shall be submitted to the ENGINEER for review. Approval shall be obtained before pipe is purchased.

E. If the sewer pipe is greater than 15 feet deep PVC pipe shall be SDR 21.

F. Truss pipe shall meet or exceed all of the requirements of the current ASTM D2680.

G. Ductile iron pipe shall meet or exceed all the requirements of ANSI A21.50 with a cement lining.

2.02 SEWER PIPE FITTINGS

A. Fittings shall be of the same material as the pipe, and in no case shall the walls be thinner than that of the pipe furnished.

B. Wye and tee fittings for PVC pipe shall be reviewed by the ENGINEER before purchasing.

C. The dry fit of all fittings must be snug. If the fit is such that it is loose, the pipe or fitting will be rejected as faulty and of improper size.

2.03 SEWER PIPE JOINTS

A. Concrete pipe joints shall be made of a resilient material conforming to the latest revision of ASTM Designation C443. Proper lubricant shall be furnished by the joint manufacturer.

B. Concrete pipe for use with rubber joints shall be smooth and precisely formed to provide a uniform annular space for joint materials.

C. PVC pipe shall be jointed with ring gusseted bell ends. (ASTM-D3212) Jointing materials shall be applied to the bell end of the pipe at the point of manufacture in such a manner that a tight uniform joint will be achieved and such that when the joint is made up in the field, the joint material will not roll or tear from the pipe. A proper joint lubricant shall be furnished by the pipe manufacturer.

2.04 REINFORCED CONCRETE MANHOLES

A. Manholes shall conform to the current ASTM specifications for precast reinforced concrete manhole sections, serial designation C478. Manhole section joints shall conform to ASTM C990-96. Cone sections shall be straight side type, with an offset step configuration.

B. All manhole component parts shall have the name of the manufacturer stenciled on the inside. The lettering or logo shall be a minimum of 4-inches high.

C. Manholes constructed over an existing sewer line shall have a doghouse mudded to an 8-inch thick cookie. The bottom of the existing pipe shall be the channel. All other manholes shall have precast integral base sections with pre-formed concrete channels.

D. All channels shall be constructed to the full flow depth of the pipe.

2.05 MORTAR FOR MANHOLES

A. Mortar for plastering manholes shall be made of one part Portland cement and two parts fine aggregate.

2.06 MANHOLE FRAMES AND COVERS

A. Manhole frames and covers shall weigh not less than 350 lbs. Each frame and cover shall have machined bearing surfaces and shall be suitably notched for convenient removal of the cover. Each cover shall be marked with the Pittsfield Township logo and the letters, PITTSFIELD TWP SANITARY SEWER integrally cast into the cover.

B. Covers shall be of the "self-sealing" design having a continuous gasket glued in a machined groove and a concealed pickhole. Frames and covers shall be East Jordan 1040Z, with Type AGS cover.

C. All manhole frames and covers shall be coated by the manufacturer with coal tar pitch varnish or other asphaltum coating reviewed by the ENGINEER.

2.07 MANHOLE STEPS

A. Steps shall be plastic coated steel. They shall be M.A. Industries PS1-PF or PS1-B, or approved equal.

2.08 MANHOLE CONNECTIONS

A. Sewer pipe (6-inch to 24-inch) to manhole connections shall be through: 1) a flexible rubber boot which shall be securely clamped into a core-drilled pipe port. Pipe ports shall be core-drilled at the point of manhole manufacturer and shall be accurately located within 1/2-inch of proposed sewer centerline (Kor-N-Seal); or, 2) a self-adjusting mechanical pipe to manhole seal which provides a resilient flexible and infiltration-proof joint (Res-seal); or, 3) a flexible rubber wedge firmly rammed into a rubber gasket which is cast into the manhole (Press Wedge II), or equal. All flexible pipe to manhole connections shall be installed per the manufacturers specifications.

B. Neoprene rubber for the manhole boot shall meet ASTM Specification C443 and shall have a minimum thickness of 3/8-inch. Pipe clamp bands shall be of corrosion-resistant steel.

C. Sewer pipe over 24 inches to manhole connections shall be in accordance with details shown on the Plan.

2.09 SANITARY MANHOLE ADJUSTMENTS

A. All final grade adjustment of manhole covers and frame assemblies shall be completed utilizing injection molded High Density Polyethylene (HDPE) adjustment rings as manufactured by LADTECH, INC. or approved equal. The adjustment rings shall be manufactured from polyethylene plastic as identified in ASTM Designation D 1248.

B. All adjustment for matching road grade shall be made utilizing a molded indexed slope ring.

C. Each adjustment ring shall be sealed with a 3/16 to ¼ inch bead of butyl rubber sealant per the manufacturer's instructions. Sealant shall meet ASTM specification C-990.

D. All castings and adjustment rings shall be securely fastened to the cone of the structure with four 3/8-inch threaded rods. The rods shall be galvanized or stainless steel anchored to the structure with Redhead concrete anchors or equal. Stainless steel or galvanized nuts and washers shall be used to attach the casting.

2.10 MANHOLE DROPS

A. Manhole drop connections shall be interior drops using the drop bowl as produced by Reliner-Duran Inc. or approved equal.

B. Drop bowl model A-4" shall be used for all lines up through full 6-inch inlets. Drop bowl model A-6" shall be used for all 8-inch inlets. Drop bowl model B-8" shall be used for all 10-inch inlets. Lines larger than 10 inches shall be as directed by the ENGINEER.

C. The force line hood shall be attached on models A-4" and A-6" when the incoming line is from a force main or the slope is 3 percent or greater.

D. The drop pipe shall be secured to the manhole wall with Reliner-Duran, Inc. stainless steel adjustable clamping brackets or approved equal.

E. The drop bowl and each clamping bracket shall be attached to the manhole wall with 3/8-inch x 3 3/4-inch bolts.

F. The incoming pipe shall be trimmed such that it protrudes 2 inches into the manhole.

G. A 1-inch V shaped notch shall be cut into the bottom edge of the incoming pipe.

3.00 EXECUTION

3.01 EXCAVATION AND BACKFILL

A. All excavation and backfill above a line 12 inches above the crown of the pipe shall conform to Section 2.04, Earthwork, of these Specifications.

3.02 BEDDING

A. Reference Section 33.83a of 10 State Standards.

B. Reference Section 33.83b of 10 State Standards.

C. Ductile iron, and concrete pipes shall be laid on a compacted granular material placed on the bottom of the trench to a depth of not less than 3 inches for 24-inch and smaller pipe and not less than 4 inches for pipe larger than 24-inch conforming to Class B bedding as shown on the Plans. Where shown on the Plans or required by the ENGINEER, concrete encasement or concrete cradle shall be used.

D. PVC pipe shall be laid on a compacted granular material placed on the bottom of the trench to a depth of not less than 4 inches conforming to Class B bedding as shown on the Plans. Where shown on the Plans, or where the pipe passes under a road with less than 4 ft of cover, the pipes shall be encased.

E. For all pipes, compacted granular material shall be placed at the sides of the pipe and cover not less than 12 inches above the crown of the pipe.

F. "Granular Material" shall be class 2NS sand, pea gravel or crushed stone conforming to ASTM C33 Size No. 67 placed in not more than 6-inch layers and com\-pacted to not less than 95% standard density for PVC and 90% standard density for reinforced concrete.

G. Pea gravel or crushed stone used for bedding shall be separated from the sand backfill with a non-woven geotextile fabric. The fabric shall be Amoco 4551, or approved equal.

3.03 PIPE INSTALLATION

A. Installation of PVC pipe shall be in confor\-mance with ASTM D2321-89.

B. All pipe shall be laid true to the required lines and grades. All trenches when pipe laying is in progress shall be kept dry; and all pipes and fittings shall be uniformly supported on a properly trimmed bedding with holes at each joint to receive bells. All pipe shall be laid with bells uphill.

C. All joints shall be made up in accordance with the manufacturer's instructions using materials and equipment especially prepared for the type of joint to be used.

D. The grade as shown on the profiles is that of the pipe invert and that to which the work must conform. The grade shall be kept by levels, laser or other tools which shall be furnished by the CONTRACTOR at his expense. Each pipe shall be laid accurately to the line and grade as shown on the Plans and in such manner as to form a close concentric joint with the adjoining pipe and prevent sudden offsets of the invert. The interior of sewers shall, as the work progresses, be cleaned of all dirt, cement, debris and other superfluous materials of every description. Bulkheads shall be used to keep foreign materials out of the open end of the sewer when work is not in progress.

E. The location of the piping as shown on the Plans has been determined to avoid, insofar as possible, interference with trees or structures or fixtures above ground and other underground mains, services, utilities, or structures. Any change in location or alignment of piping which may be found more feasible or practicable as the work progresses shall be made by the CONTRACTOR, as the ENGINEER may direct.

F. All pipe and fittings shall be carefully lowered and moved into position in trench or vault in a controlled manner such as will prevent damage to the pipe and any coatings or lining. An excessive amount of scratching on the surface of the PVC pipe will be considered cause for rejection.

G. The trench shall be backfilled closely behind the pipe laying. Unless otherwise directed or permitted by the ENGINEER, the backfilling shall follow and be completed to the top of the trench within two pipe lengths behind pipe laying.

H. All cutting of the pipe shall be done in a neat workmanlike manner with the least amount of waste and without damage to existing or new lines. A fine tooth saw, tubing cutter or similar tool may be used to cut PVC pipe. Cuts must be square. Ragged edges shall be removed with a cutting tool or file.

I. After cutting bell and spigot or socket pipe, a stop mark shall be made with a pencil or crayon using dimensions as shown by the manufacturer's instructions or by using another pipe in the field as a guide.

J. Breaks in pipe or joints shall be repaired to the satisfaction of the ENGINEER and at the expense of the CONTRACTOR.

3.04 CONNECTIONS TO EXISTING MANHOLES AND OTHER RIGID STRUCTURES

A. When a sewer is connected to an existing manhole, a hole adequate to receive the new pipe shall be cut into the manhole.

B. If the existing manhole is of brick construction, a single rowlock of brick shall be turned over the new pipe and the existing manhole brick work shall be cleaned, pointed and given a 1/2-inch mortar coat on the outside surface.

C. For connections to existing precast reinforced concrete manholes, a hole shall be cored into the concrete manhole wall to receive the pipe. A Kor-N-Seal boot or engineer approved equal shall be clamped into the cored hole and used to make the connection.

D. For connections to existing fiberglass manholes, a hole shall be cored into the manhole wall to receive the pipe. A Kor-N-Seal boot or engineer approved equal shall be installed using fiberglass reinforced pipe stubout for Kor-N-Seal boot sealing surface.

3.05 STREAM AND RIVER CROSSING

A. Whenever a pipe is required to cross a stream or river, all work shall be in accordance with the provisions of Act 346, the Inland Lakes and Streams Act of 1962, and the rules and regulations promulgated thereunder. Stream crossings and all restoration required shall be completed within five days of the construction.

B. The CONTRACTOR shall utilize such con\-struction methods as are feasible and practicable to divert or stop stream flow to lay the pipe in the dry. Pipe shall be ductile iron, mechanical joint, or compression gasket joint pipe with joints at transition to other types of sewer pipe encased with no less than 1 cu yd of concrete, placed at a minimum of 6 inches thickness around the pipe. After the sewer is properly laid, jointed and encased, the stream-channel shall be cleaned of dirt and debris resulting from the CONTRACTOR's operations.

C. After the crossing is made, heavy riprap and sodding shall be placed to protect the banks from corrosion as shown on the Plans.

PCT July 2008

Pittsfield Charter Township
6201 W. Michigan Ave.
Ann Arbor, MI 48108–9721
48108–9721
Tel. 734.822.3101
www.pittsfield–mi.gov

TWP REV	BWA	DRW	11.04.27
UPDATES	BWA	DRW	10.10.25
UPDATES	TTN	DRW	10.01.20
Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

File Name: SS–02	BWA	DRW	DRW	07.10.01
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project
PITTSFIELD TOWNSHIP

Pittsfield Township, Michigan

Title
SANITARY SEWER SPECIFICATIONS

Project No. 2075001300

Scale NOT TO SCALE

Revision 1

Earthwork

1.00 GENERAL

1.01 DESCRIPTION

A. The CONTRACTOR shall perform all excavation and backfilling necessary to complete the work. This shall include the excavation of earth and rock, the removal and disposal of unsuitable material, dewatering, placement of suitable fill and backfill material, pipe boring and jacking, all quality assurance testing, and the restoration and final grading for all earth surfaces.

1.02 WORK WITHIN RIGHTS-OF-WAY

A. Where the governmental bodies having jurisdiction of the streets or rights-of-way have specific specifications relating to the requirements for work within their jurisdiction, such requirements must be met as a minimum requirement, and if these Specifications impose further limitation on the work, they shall also be met as the required work standard.

B. During all operations of the CONTRACTOR in the streets and roadways, the CONTRACTOR shall maintain barricades, lights, and warning signs as required by the agency having jurisdiction.

1.03 WORK WITHIN EASEMENTS

A. During construction within any easements, the CONTRACTOR shall confine himself to the limits shown on the Plans. He shall notify property owners in advance of moving equipment on easements and use of the access routes which will be designated by the OWNER. The OWNER will cooperate in working out the details of access. The topsoil over the trench shall be removed and carefully replaced upon completion of the work. The backfill of the trench in the easement may be left slightly high to provide for any slight residual settlement. Any trees, shrubs, or bushes removed shall be replaced to the satisfaction of the property owner.

1.04 SOIL BORINGS

A. Soil boring results, if taken on a site, are appended to these Specifications with locations noted. Boring logs are shown to be generally representative of the site and to assist in the design and construction of the work.

2.00 PRODUCTS

2.01 BACKFILL MATERIAL

A. For areas not requiring "granular backfill" material, backfill shall be of the excavated material, with the exception that materials such as soft clay, topsoil, muck, cinders, vegetable matter, refuse, boulders and other objectionable and non-packing earth shall be excluded from the backfill and removed from the site. Stone larger than 3 inches in any dimension shall be excluded from the backfill and removed from the site by the CONTRACTOR.

B. Where "granular material" backfill is required as specified herein, backfill material shall be defined as a material meeting granular material Class II as defined in 2003 MDOT 902.08.

C. All utilities within road right-of-way corridor (existing or proposed) shall be backfilled with MDOT CL II granular material compacted to 95% maximum unit weight.

D. All utilities shall be installed with 2 NS sand bedding or better.

2.02 ENCASING PIPE

A. Steel encasing pipe for boring and jacking shall conform to the requirements of either, ASTM A53, Type E or S, Grade B or ASTM A139, Grade B.

B. Steel encasing pipe used under channels and highways shall meet the requirements of the governmental agency having jurisdiction and the following minimum requirements:

Nominal Diameter (Inches)	Maximum Wall Thickness
Under 13	0.188 inches
13-24	0.250 inches
25-36	0.312 inches
42	0.438 inches
48	0.500 inches
54	0.563 inches

C. Steel encasing pipe used under railroads shall meet the requirements of the railroad and the following minimum requirements:

	Minimum Wall Thickness (inches)	
Nominal Diameter (Inches)	Coated or Cathodically Protected	Uncoated & Unprotected
Under 14	0.180	0.251
14-16	0.219	0.282
18	0.250	0.313
20	0.281	0.344
22	0.312	0.375
24	0.344	0.407
26	0.375	0.438
28-30	0.406	0.469
32	0.438	0.501
34-36	0.469	0.532
38-42	0.500	0.563
48	0.563	0.626

D. Casing pipe joints shall be welded to form a leak-proof continuous casing.

E. The inside diameter of casing pipe shall be at least 2 inches greater than the largest outside diameter of the carrier pipe joints or couplings for carrier pipe less than 6 inches in diameter, and at least 4 inches greater than the largest outside diameter of the carrier pipe joints for carrier pipe 6 inches and over in diameter, unless otherwise shown on the Plans.

F. The steel casing pipe shall be of smooth interior and shall be placed accurately to line and grade, allowing for the encased pipe thickness and supports under each length of encased pipe.

3.00 EXECUTION

3.01 GENERAL EXCAVATION

A. Excavation shall be performed by any practicable method consistent with the integrity and protection of the work and neighboring structures, workmen, and the public. Topsoil shall be separately removed and stockpiled for reuse.

B. All excavation, except where necessary to tunnel, bore or jack under roads, railroads, tree roots and other obstructions within the limits indicated on the Plans, may be open cut from the surface. Tunneling or boring under trees shall be considered as incidental to construction and will not be considered as cause for request for additional payment.

C. Foreign material or unsuitable foundation material encountered such as wood, boulders, etc., which obstruct the excavation, shall be removed. Such materials found at the bottom of the excavation shall be removed and the foundation restored with approved materials.

D. If excess excavation is made or the material becomes disturbed so as to require removal beyond the prescribed limits, the resulting space shall be filled with selected material solidly tamped into place, in not more than 6-inch layers to the satisfaction of the ENGINEER, before the construction work proceeds. At the direction of the ENGINEER, the excess excavation may be filled with 2000 psi concrete at the CONTRACTOR's expense.

E. The excavation shall be kept dry during the work. Where water is encountered in the excavation, it shall be removed by pumping or well points. All necessary precautions shall be taken to prevent damage to existing wells and to completed or partially completed structures. The CONTRACTOR shall be responsible for all damages caused by him due to inadequate or improper protection.

F. The CONTRACTOR shall take ample precautions to protect all trees and ornamental shrubbery not within the limits of the construction areas, or within the construction areas shown on the Plans to be retained from injury by workmen, equipment, or any other agencies connected with the work, including subcontractors. Such protection shall be provided during the progress of the excavation, grading, or other phases of the work as necessary. Such trees or shrubbery shall be surrounded by protective posts or fencing before construction begins, when in judgment of the ENGINEER, such precautionary measures are necessary. If, as a result of any phase of the work, trees are damaged or it is necessary to remove limbs in the way of construction, the repair of the damage and such limb removal shall be done by the CONTRACTOR as directed by the ENGINEER. All costs for the protective work shall be borne by the CONTRACTOR as incidental to the Contract work.

G. Any excavation not backfilled at the end of each day must be clearly marked and surrounded by appropriate safety fencing as directed by the ENGINEER. If directed by the ENGINEER, the CONTRACTOR shall cover the open excavation with a steel plate and light the excavated area.

3.02 EXCAVATION FOR SEWERS AND WATER MAINS

A. Trenches shall be excavated to the depth required with allowance for bedding the pipe. The trench shall be cut wider and deeper at each pipe joint location to provide for properly completing the pipe joint and to relieve the joint of all loadings.

B. The width of the trench at the top of a rigid pipe shall be sufficient to allow the pipe to be laid and jointed properly and shall provide for a minimum net clearance of 6 inches and a maximum net clearance of 12 inches on each side of the barrel of the pipe and to allow the backfill to be placed and properly compacted.

C. The width of trench at the top of a flexible pipe backfill when using concrete bedding shall be sufficient to allow the pipe to be laid and jointed properly with the minimum net clearance of 12 inches and a maximum net clearance of 18 inches on each side of the barrel of the pipe.

D. Where the conditions of the ground require or where the work is in close proximity of existing structures, the sides of excavation shall be securely held by bracing and/or sheeting which may be removed in units when the level of the backfill has reached a point where it is safe to pull the sheeting without disturbing the protected feature. No sheeting, bracing, or other timber shall be left in the excavation upon the completion of the main or other structures, except with the specific review and direction of the ENGINEER.

E. Other underground mains, sewers or structures encountered in the excavation shall be adequately supported during the CONTRACTOR's operations, and before backfilling, shall be given permanent support as directed by the ENGINEER to meet the standards or requirements of the owning utility or agency.

F. Water, sewer, gas and other utility services disturbed by the CONTRACTOR in his operations shall be repaired or replaced in a manner equal to the original condition by the CONTRACTOR at his own expense. Where these services are encountered and are undamaged, they shall be supported and/or protected by the CONTRACTOR at his expense against later settlement and/or damage after backfill. The CONTRACTOR shall consult the agency or the utility firm having jurisdiction over any duct line, gas main, etc., which may cross the excavation to determine method of supporting such duct or pipe.

G. All excavated material shall be piled in a manner that will not endanger the work and that will avoid obstructing sidewalks and driveways. Hydrants under pressure, valve manhole covers, valve boxes, curb stop boxes, fire and police call boxes, or other utility controls shall be left unobstructed and accessible until the work is completed. Gutters shall be kept clean, or other satisfactory provisions made for street drainage, and natural water courses shall not be obstructed except as otherwise provided for herein on a temporary basis.

3.03 EXCAVATION FOR STRUCTURES

A. Excavation for structures shall be extended sufficiently beyond the limits of the structure to provide ample room for form construction and for practicable construction methods to be followed.

B. Requirements for excavation of sewers and water mains shall also apply to this Section.

3.04 EXCAVATION FOR PAVED SURFACES

A. In excavating around manholes and catch basins or inlets, care shall be exercised to avoid removing the casings and pushing dirt into the structures. Dirt pushed into manholes, catch basins or inlets by the CONTRACTOR's operations shall be immediately removed so that the dirt will not be carried into the sewer by the flow of sewage or storm water.

B. The CONTRACTOR shall take ample precautions to protect all trees and ornamental shrubbery not within the limits of the construction area, or within the construction areas shown on the Plans to be retained from injury by workmen, equipment, or any other agencies connected with the work, including subcontractors. Such protection shall be provided during the progress of the excavation, grading, or other phases of the work as necessary. Such trees or shrubbery shall be surrounded by protective posts or fencing before construction begins, when in judgment of the ENGINEER, such precautionary measures are necessary. If, as a result of any phase of the work, trees are damaged or it is necessary to remove limbs in the way of construction, the repair of the damage and such limb removal shall be done by the CONTRACTOR as directed by the ENGINEER. All costs for the protective work shall be borne by the CONTRACTOR as incidental to the Contract work.

3.05 ROCK EXCAVATION

A. Rock excavation shall consist of excavating igneous, metamorphic and sedimentary rock which cannot be excavated without continuous drilling and blasting or drilling and splitting to fracture the rock. Blasting shall be permitted only after it has been shown that other methods of excavation are impractical. All rock excavation shall be carried to a minimum depth of 8 inches below the pipe or manhole bottom and to the bottom of all footings. The width of the rock excavation shall not exceed the diameter of the pipe plus 12 inches on either side or the edge of the foundation footing.

B. When the use of explosives is necessary for the progression of the work, the CONTRACTOR shall comply with all laws, ordinances and applicable safety code requirements and regulations relative to the handling, storage and use of explosives and protection of life and property. A person competent and experienced in the use of explosives shall be employed to supervise the work. The CONTRACTOR shall schedule all blasting for a definite hour of the day and shall so notify all residents and businesses in the area as to the scheduled day and hour for such blasting operations. Explosive materials shall not be stockpiled and stored in residential areas. Explosives and initiating devices shall not be carried in the same vehicle.

C. Suitable weighted plank coverings or timber mats shall be provided to confine all materials lifted by blasting within the limits of the excavation of trench. Excessive blasting or overshooting shall not be permitted. Any material outside of the authorized excavation cross section which may be shattered or loosened shall be removed at the CONTRACTOR's expense. The CONTRACTOR shall be responsible for all damage resulting from the use of explosives.

3.06 PIPE BORING AND JACKING

A. The CONTRACTOR shall obtain all necessary permits for jacking the encasing pipe under channels, highways and/or railroads and shall notify the governmental agency and/or company having jurisdiction 48 hrs before work at any crossing is started. The CONTRACTOR shall pay all costs for an inspector and/or flagmen required by a railroad or governmental agency.

B. A suitable approach trench shall be opened, adjacent to the toe of the slope of the embankment. The approach trench shall be long enough to accommodate the length of pipe units to be placed, and wide enough to provide sufficient working room. Guide timbers or rails for keeping the pipe on-line and grade shall be installed in the bottom of the trench and heavy timber backstop supports installed at the rear of the trench to take the thrust of the jacks. A timber bearing a "pushing frame" shall be built and furnished to fit or match the end of the pipe to be jacked, so that the pressure of the jacks will be evenly distributed over the end of the pipe. Two (2) hydraulic jacks of sufficient power shall be used to apply pushing or jacking pressure. For firm ground, excavation shall be carried on from inside the pipe, not to exceed twelve (12) inches ahead of the lead pipe. For unstable ground, the lead pipe shall precede the auger. Excavation at the top and sides shall be accurately cut to line and grade. Adjoining sections of steel pipe shall be welded. Pipe shall be jacked on successive shifts until completed to guard against the "freezing of the line" due to settlement and compaction of surrounding soil.

C. The sheeting of pits along any road will be required if the leading edge of all work pits will be closer to the pavement edge than the shoulder point or ten (10) ft, which ever distance is greater, or on curb and gutter sections, at least five (5) ft from back of curb.

D. Upon completion of the installation of the steel pipe encasement, the contractor shall furnish and install a bolted style casing spacer as described below on the carrier pipe. Casing spacers shall be placed a maximum of seven (7) feet apart along the length of the carrier pipe with one casing spacer within 2-1/2 feet of each side of a pipe joint and the rest evenly spaced. Wood skids are not an acceptable method of supporting the carrier pipe.

1. Casing spacers for carrier pipes from 4" - 24" shall be made of a molded, segmented high density polyethylene plastic with 304 stainless steel connecting nuts and bolts. Minimum spacer width shall be 5.2" for carrier pipes from 4" - 12" and 7.0" for carrier pipes 14" - 24". Each casing spacer shall have at least six (6) integrally molded skids extending 1" beyond the bell or mechanical joint of the carrier pipe. The casing spacers shall be equal to the PSI Ranger as manufactured by Pipeline Seal and Insulator, Inc., Houston, TX.

2. Casing spacers for carrier pipes larger than 24" shall be a PVC fusion bonded coated (10-16 mils) steel shell (minimum 14 gauge steel) with a 90 mil PVC inner liner and 2" wide 30% glass reinforced polyester runners (minimum compressive strength = 18,000 psi) (polyethylene is not an acceptable runner material) attached by 3/8" coated steel studs welded to the steel shell. All bolts and nuts used to fasten the shell to the carrier pipe shall be cadmium plated steel. Where riser are required under the runners they shall be a minimum 10 gauge steel welded to the shell and coated as specified for the shell (epoxy is not an acceptable coating for the shell riser). The casing spacers shall be equal to the PSI Model C as manufactured by Pipeline Seal and Insulator, Inc., Houston, Texas.

E. Boring shall be performed by accepted and recognized methods which will provide adequate safety and protection at all times to workmen employed in the work and to inspectors and others involved in the construction.

F. If voids should develop around the outside of the encasing pipe, grouting or other methods approved by the ENGINEER shall be employed to fill such voids.

G. After the pipes are tested satisfactorily, the remaining space between the carrier pipe and the encasing pipe shall be pressure grouted or otherwise filled with concrete. The carrier pipe shall be adequately braced to prevent floating or movement of the pipe.

3.07 SHORING, SHEETING AND BRACING

A. Where sheet piling, shoring, sheeting, bracing, or other supports are necessary, they shall be furnished, placed, maintained, and except as shown or specified otherwise, removed by the CONTRACTOR.

B. All sheet piling, shoring, sheeting and bracing shall be designed by a professional engineer engaged by the CONTRACTOR with demonstrated competence and experience in such work. The sheeting system shall be designed to prevent bottom failure and hydrostatic uplift within the excavation. Provision shall also be made in the design for lateral pressures due to side slope and construction equipment or other surcharge loads, as applicable.

C. The CONTRACTOR shall provide to the ENGINEER for his review, design calculation and arrangement drawings of the sheeting system prior to ordering any materials for bracing, sheeting, etc., and prior to the commencement of the excavation.

D. All materials, except as otherwise specified, used for sheeting and sheet piling, lagging, braces, shores, and stringers, or waling strips shall be of approved quality and dimensions throughout.

E. Materials for sheeting systems shall be furnished and driven or set in place by the CONTRACTOR, where necessary or wherever ordered by the ENGINEER, whether the same is or is not considered necessary by the CONTRACTOR. If, in the opinion of the ENGINEER, the materials furnished by the CONTRACTOR are not of proper quality or sufficient size or not properly placed to ensure the safety of the work or of adjacent structures and property, the CONTRACTOR shall, upon notice from the ENGINEER to that effect, forthwith procure, furnish and set in place or drive other and satisfactory materials, or place the material in a satisfactory manner; and if he shall fail or neglect to do so, the ENGINEER may order all or any part of the work to be stopped until such materials so used are furnished and placed; and the CONTRACTOR shall not be entitled to claim, demand, or receive any compensation for larger size or better quality or different disposal of materials ordered by the ENGINEER, nor any compensation for allowance of any kind whatsoever for or on account of any damage or delay resulting from such stoppage of work.

F. Steel sheet piling may be either new or used. It shall be of adequate strength, straight and properly braced. Steel sheet piling shall be of the interlocking type. Friction in the interlocks shall not be assumed to contribute to the strength of the sheet piling.

G. The design, planning, installation and removal, if required, of all sheet piling, shoring, sheeting, and bracing shall be accomplished in such a manner as to maintain the required excavation or trench section and to maintain the undisturbed state of the soils below and adjacent to the excavation.

H. Steel sheet piling for the excavation shall be driven straight and in-line. The piling shall be supported above ground, before driving, by a guide frame at least 20 ft high which will keep the piling accurately in the required position and vertical. Each piece of piling shall be driven only a few feet at a time and driving shall proceed continuously around the perimeter so that the piles shall reach their full penetration together.

I. Walers and bracing shall be supplied and installed as required to complete the sheeting system. Walers and braces shall be of adequate strength for the load imposed. Splices in walers shall develop the full strength of the member in bending, shear, and axial compression.

J. If bracing members are to be removed during construction, the timing and procedure for removal shall not induce excessive stresses in the permanent structures or in steel sheet piling and bracing members.

K. If the construction sequence of structures requires the transfer of bracing to the completed portions of any structure, the CONTRACTOR shall secure written acceptance of the ENGINEER prior to the installation of such bracing.

L. In trenching operations the use of horizontal strutting below the barrel of pipe or the use of the pipe as support for trench racing will not be permitted. The use of a traveling shield for sewer construction shall require that the device be approved for use by a professional engineer. Sheet piling and timbers in trench excavations shall be withdrawn in a manner so as to prevent subsequent settlement of the pipe or additional backfill loadings which might overload the pipe.

M. The neglect, failure, or refusal of the ENGINEER to order the use of sheeting, or sheet piling or steel, or to order the same to be left in place, or the giving or failure to give of any order or directions as to the manner or methods of driving or placing sheeting, sheet piling, bracing, shores, etc., shall not in any way relieve the CONTRACTOR of any or all obligations under this Contract. Sheeting left in place shall be cut off one (1) ft below existing grade.

N. The rules of the OSHA and the State Department of Labor with respect to excavation and construction shall at all times be strictly observed.

3.08 GENERAL BACKFILLING

A. For all areas, unless otherwise noted, backfilling shall consist of placing excavated material as defined in Paragraph 2.01.A. of this Section, in 12-inch lifts to finish grade. Compaction of backfill shall be such as to obtain 90% of the maximum density.

B. Under pavements, curb, paved driveways, and sidewalks, and where pipe is within a one on one influence of pavement, compaction testing shall be performed by an independent testing laboratory. Testing shall be performed at intervals of one test per lift per 50 feet of trench or as determined necessary by the ENGINEER.

C. In residential developments, all backfill within the road corridor shall be granular material compacted in layers not to exceed 12 inches loose thickness with backfilling carried up to subgrade. Compaction of backfill shall be as such to obtain 95% of the maximum unit density as determined at the optimum moisture content. For purposes of this section, the road corridor is defined as front of house to front of house, including right-of-way and adjacent easements and setbacks.

3.09 BACKFILLING FOR SEWERS AND WATER MAINS

A. Backfilling shall consist of placement of the prescribed materials from a level 12 inches above the crown of the pipe. Placement shall be as follows:

1. Under gravel driveways, gravel roads and shoulders, the backfill shall be granular material which shall be solidly compacted by mechanical tamps in layers of not more than 12 inches loose thickness with backfilling carried up to within 12 inches of finished grade. Compaction of backfill shall be such as to obtain 95% of the maximum unit density as determined at the optimum moisture content.

2. Under pavements, curb, paved driveways, and sidewalks, the backfill shall be granular material compacted in layers not to exceed 12 inches loose thickness with backfilling carried up to subgrade. Compaction of backfill shall be such as to obtain 95% of the maximum unit density as determined at the optimum moisture content. After a period of about 60 days or less, if the backfill compaction is satisfactory to the ENGINEER, to provide for any slight settlement, the CONTRACTOR shall retrim neatly any broken edges of pavement and replace the top surface of the backfill within the pavement area with pavement surface equal to that surface which was removed. The pavement shall be replaced in accordance with the standard specifications of the agency having jurisdiction.

3. Backfill around lift stations, or buried underground structures shall be granular material compacted in 12-inch lifts. Compaction of backfill shall be such as to obtain 95% of the maximum unit density as determined at the optimum moisture content.

4. For all other areas, backfilling shall consist of placing excavated material as defined in Paragraph 2.01.A. of this Section, in 12-inch lifts to finish grade. Compaction of backfill shall be such as to obtain 90% of the maximum unit density as determined at the optimum moisture content.

3.10 FILLING AND BACKFILLING FOR STRUCTURES

A. Embankments underlying structural footings, streets and drives, sidewalks and around structures shall be granular material meeting the requirements of the Michigan Department of Transportation for granular material compacted to 95% density.

B. In all other areas, material required for embankments and backfilling shall be soil or soil-rock mixture free of organic and other deleterious matter and shall contain no more than 15% rocks or lumps larger than 2-1/2 inches in the greatest dimension, compacted to 90% density.

C. Under all interior and exterior floor slabs, an 8-inch thick granular cushion shall be placed. This material shall be clean mineral aggregate meeting the following gradation requirements:

Passing the No. 4 Sieve	100%
Passing the No. 200 Sieve	0-3%

D. Where embankment material is placed to achieve a new surface elevation, the top 4 inches shall be approved topsoil either salvaged from the site or hauled in by the CONTRACTOR.

3.11 FILLING AND BACKFILLING FOR PAVED SURFACES

A. Embankments, including sand cushions and granular fills, shall be placed in successive layers not more than 6 inches in depth the full width of the cross section, each layer to be thoroughly compacted by means of vibratory compactors or by an approved pneumatic-tired roller or combination thereof, as required by the ENGINEER. Each layer shall be compacted to not less than 95% of the maximum unit density as determined at the optimum moisture content. All parts of the embankment shall be uniformly compacted and the CONTRACTOR shall so direct all earthmoving equipment used in the work so that the same shall be attained. Embankment or fill outside the limits of the subgrade where sand or gravel is not required shall be made with suitable material which is free from perishable organic matter, rubbish, stones, broken concrete, roots, or other foreign materials, at no additional compensation. Before any embankments are begin, the base shall be made firm and cleared of topsoil, sod or other perishable material. The sides of the embankment shall be neatly and evenly dressed to the slope shown on the Plans, or such other slope as the ENGINEER may direct.

B. Upon completion of the placing of the curbs, and after the concrete has cured sufficiently, forms shall be removed and the excavated space behind the curb shall be backfilled with a good quality of surface soil, free of rubbish, stone, broken concrete, roots or other foreign material. Where adequate acceptable material for backfill behind the curb is not available, granular fill conforming to 2003 MDOT 8.02.06, Class II, shall be used. Where the area behind the curb is in cut, it shall be trimmed from the top of the curb on the slope shown on the Plans. If the area is in embankment or fill, an earth berm shall be placed immediately adjacent to the top of the curb and then the embankment of fill shall be finished to the slope shown on the Plans. All trimming and finishing shall be done in a neat, workmanlike manner. All excess concrete and debris shall be removed from the excavation behind the curb line before backfilling begins.

C. In construction of non-rigid pavements, backfilling back of curb and gutter shall be completed before placement and compaction of the base course of the roadway.

3.12 PREPARATION OF SUBGRADE FOR ROADWAY SURFACES

A. The bottom of the excavation for the pavement or top of the fill shall be known as the pavement subgrade and shall be smoothed, trimmed and compacted to the required line, grade and cross section to receive the road metal. It shall be thoroughly compacted by rolling with a roller of approved type weighing not less than 8 tons. The subgrade shall be compacted to at least 95% of the maximum density as designated by the test method AASHTO T-180. Inaccessible areas, where rolling is not practical, shall be thoroughly compacted by mechanical tampers capable of striking a blow equivalent to at least 250 foot-pounds per square foot. The subgrade thus formed shall be maintained in a smooth and compacted condition until the pavement has been placed. No base course, surfacing, curb, or curb and gutter, shall be placed until the subgrade has been reviewed by the ENGINEER. The subgrade shall be finished in an acceptable condition at least one day in advance of the pavement construction at all times. Six inches of compacted depth of granular material shall be used where uncompactable soil is encountered. The granular fill shall conform to the 2003 MDOT 9.02.08., Class II, compacted to 95% of its density.

B. Immediately prior to placing the pavement, the subgrade shall be tested for conformity with the cross section shown on the Plans by means of an approved template riding on the curb and gutter sections or on side forms. If necessary, materials shall be removed or added, as required, to bring all portions of the subgrade to the correct elevation. Corrected portions shall then be thoroughly compacted and again tested with the template. Pavement material shall not be placed at any portion of the subgrade which has not been tested for correct elevation.

C. The finished subgrade shall be maintained in a smooth and compacted condition until the pavement is placed. No storage piles of fine or coarse aggregate shall be placed directly upon the finished subgrade. Should the subgrade become rutted or disturbed in any manner, it shall be reshaped and recompacted.

3.13 GRADING

A. The CONTRACTOR shall grade the site to achieve the elevations as shown on the Plans. All disturbed areas beyond the grading limits shall be restored to prior condition.

B. Surplus excavated material not needed for embankment shall be disposed of by the CONTRACTOR. Headwalls, culverts, drains, sewers and appurtenances filled or damaged by the CONTRACTOR during the course of his operations shall be cleaned, repaired, or replaced at his expense.

C. All temporary earth changes shall be in conformance with the Soil and Erosion Control Act.

3.14 RESTORATION

A. Headwalls, culverts, and drainage systems filled or damaged by the CONTRACTOR during the course of his operations shall be cleaned, relaid or rebuilt with new materials to a condition equal to the original state, and of thickness equal to the original structure and to the original line and grade at the CONTRACTOR's expense.

B. Where the excavation is located beside a ditch and/or where an existing ditch is filled or disturbed in the CONTRACTOR's operations, the CONTRACTOR shall clean, repair, or replace the ditch with properly pitched bottom and side slopes and of section and capacity not less than the original section.

C. Where excavation has been through lawn areas, the CONTRACTOR shall restore the disturbed area by placing topsoil and seeding or sodding over the final backfill material.

D. The CONTRACTOR shall remove excess dirt and other construction material from the site of the work and leave the site in a condition equal to its original state.

E. The final condition of the streets and roadways shall be subject to the approval of the governmental body having jurisdiction thereof, as well as review by the ENGINEER.

Pittsfield Charter Township
6201 W. Michigan Ave.
Ann Arbor, MI 48108-9721
48108-9721
Tel. 734.822.3101
www.pittsfield-mi.gov

TWP REV	BWA	DRW	11.04.27
UPDATES	TTN	DRW	10.01.20
Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

File Name: SE-02	TTN	DRW	DRW	07.10.01
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project
PITTSFIELD TOWNSHIP

Pittsfield Township, Michigan

Title
EARTHWORK SPECIFICATIONS

Project No. 2075001300

Scale NOT TO SCALE

Revision 1