

**SANITARY SEWER QUANTITIES**

QTY	UNIT	ITEM
1132	LF	8" PVC TRUSS PIPE
773	LF	8" PVC SDR 26
717	LF	6" PVC SDR 23.5
12	EA	4" MANHOLE
1	EA	8" BULKHEAD
10	EA	CLEANOUT

**WATER MAIN QUANTITIES**

QTY	UNIT	ITEM
1173	LF	8" DI CL 54 WATER MAIN
37	LF	6" DI CL 54 WATER MAIN
448	LF	4" DI CL 54 PRIVATE FIRE SUPPRESSION
138	LF	2" TYPE K COPPER WATER SERVICE
910	LF	1" TYPE K COPPER WATER SERVICE
3	EA	8" GATE VALVE IN WELL
1	EA	8" D.I. CAP
7	EA	STANDARD HYDRANT ASSEMBLY

**STORM SEWER QUANTITIES**

QTY	UNIT	ITEM
15	LF	6" SCH 40 PVC
2034	LF	12" CL IV RCP
271	LF	18" CL IV RCP
84	LF	24" CL IV RCP
498	LF	36" CL IV RCP
6	EA	2" INLET
21	EA	4' CATCH BASIN
6	EA	4" MANHOLE
3	EA	5" MANHOLE
1	EA	6" MANHOLE
1	EA	CONTECH CASCADE SEPARATOR CS-10
1	EA	12" FLARED END SECTION
1	EA	36" FLARED END SECTION
1	EA	POND OUTLET STANDPIPE STRUCTURE

**DESIGN ENGINEER/SURVEYOR**



MONUMENT ENGINEERING GROUP ASSOCIATES, INC

INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS

298 VETERANS DRIVE, FOWLERVILLE, MI 48836  
KEVIN C. MCDEVITT, PE  
PHONE: 517-223-3512

**CLIENT**

AUBURN ANGARA OAKS, LLC  
14496 NORTH SHELDON ROAD, SUITE 230  
PLYMOUTH, MI 48170  
CONTACT: BRUCE MICHAEL  
PHONE: (248) 703-4653

**ARCHITECT**

J. BRADLEY MOORE & ASSOCIATES, INC.  
4844 JACKSON ROAD STE 150  
ANN ARBOR, MI 48103  
PHONE: (734) 930-1500

**LANDSCAPE ARCHITECT**

VERT VERDE LANDSCAPE ARCHITECTURE, LLC  
44960 ALBERT DRIVE  
PLYMOUTH, MI 48170  
JAMES GRAY, PLA  
PHONE: (734) 249-3568

**SURVEYOR**

REICHERT SURVEYING, INC.  
140 FLUMERFELT LANE  
ROCHESTER, MI 48306  
BRADLEY G. REICHERT, P.S.  
PHONE: (248) 651-0592



JRMFD2022-0028  
PFSC2025-0001  
Revision #1  
Received 8/20/2025

City of Rochester Hills Planning & Economic Development

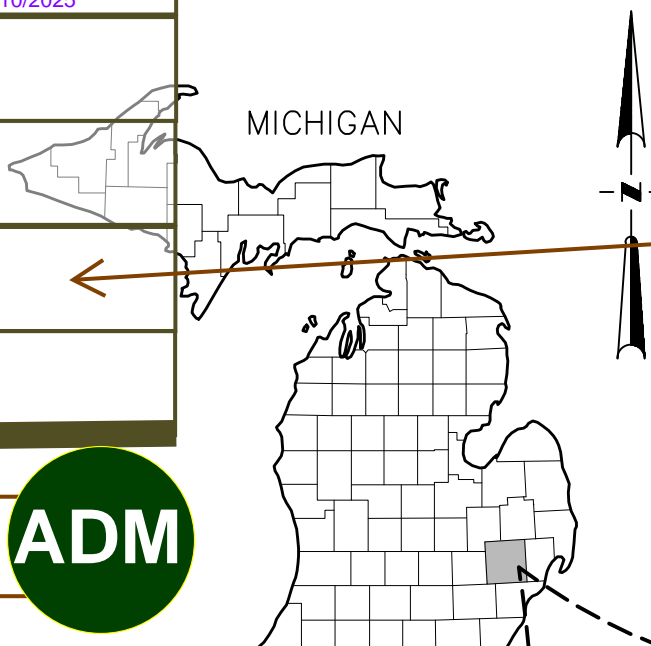
**Site Plan Review**  
Reviewed for compliance with City Ordinance, Building and Fire Codes Conditions and mark-ups noted throughout plan set must be addressed prior to final approval

Department	Reviewer	Approved
Assessing	L. Taylor 248-841-2417 taylorl@rochesterhills.org	Yes
Building	M. Artinian 248-841-2446 ArtinianM@RochesterHills.org	Yes
Engineering - Utilities	A Hysinger HysingerA@RochesterHills.org J Boughton BoughtonJ@RochesterHills.org	No
Engineering Legal	Seth Bucholz 248-841-2491 bucholz@rochesterhills.org Captain Josh Boyce 248-841-2713 BoyceJ@RochesterHills.org	YES Date: 09/10/2025
Fire		Yes
Natural Resources	Matt Einheuser 248-841-2551 EinheuserM@RochesterHills.org	Yes
Planning	Chris McLeod 248-841-2572 mcleodc@RochesterHills.org	Yes
Traffic	Keith Depp 248-841-2503 DeppK@RochesterHills.org	Yes

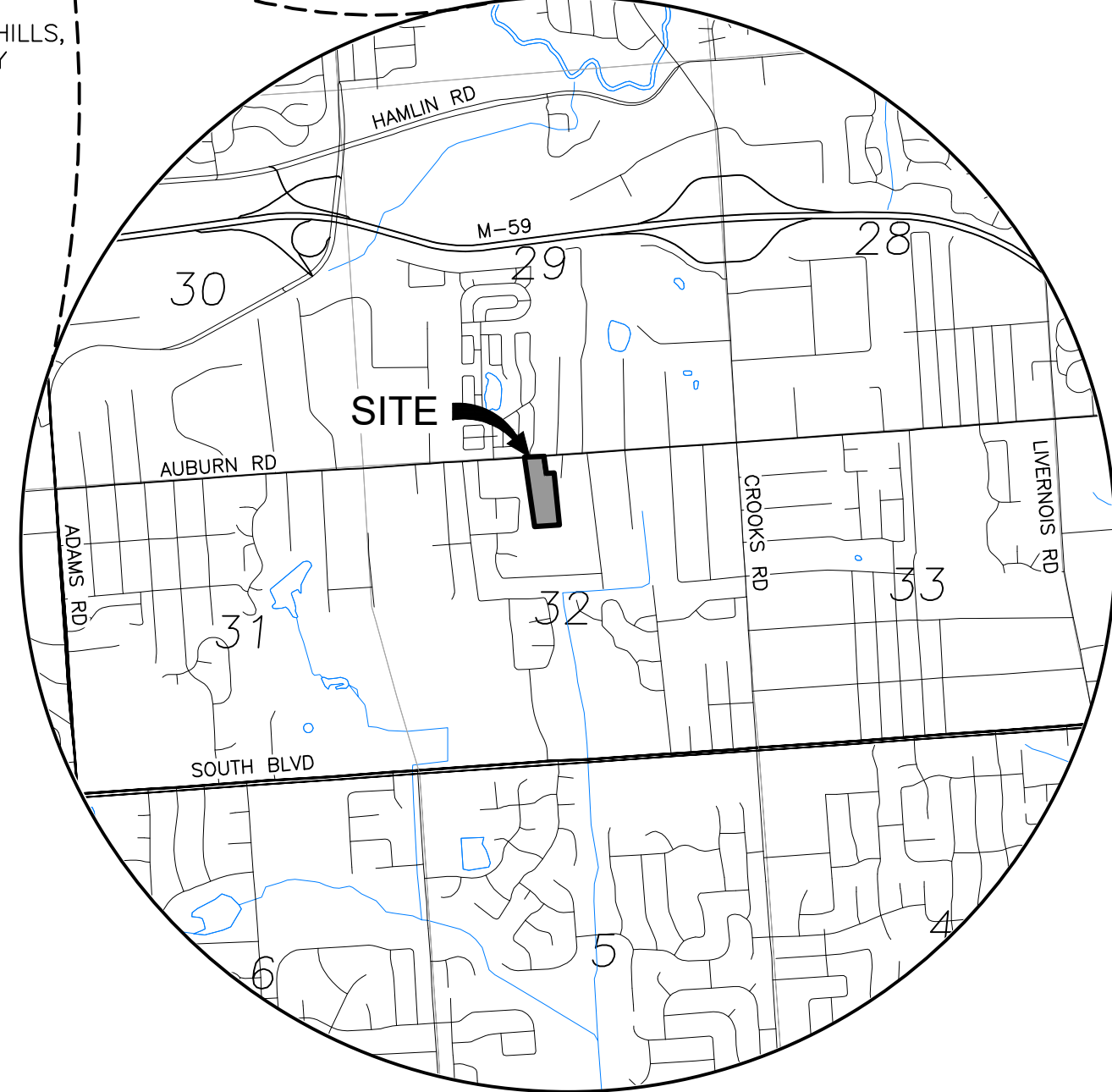
**Next Steps:** Plans are being forwarded to the October 7, 2025 Planning Commission meeting



# CONSTRUCTION PLANS FOR AUBURN ANGARA OAKS



Subject to the master deed, all applicable easement and all final permits being obtained.



LOCATION MAP



Landscape Bond = \$171,745 plus inspection fees.



1,137 linear feet of natural features setback disturbance = 20,730 permanent square feet of disturbance and 6,022 square feet



39,625 square feet of wetland impact

NUMBER	PERMIT TYPE	GOVERNING AGENCY	APPROVAL DATE
2024-0463	WETLAND USE PERMIT (CITY)	ROCHESTER HILLS	11/11/2024
--	FIRE MARSHALL	ROCHESTER HILLS FD	XX/XX/XXXX
2024-0462	PRELIMINARY CONDO APPROVAL	ROCHESTER HILLS	11/11/2024
--	FINAL CONDO APPROVAL	ROCHESTER HILLS	XX/XX/XXXX
--	CONSTRUCTION DOCUMENTS	ROCHESTER HILLS	XX/XX/XXXX
--	ENGINEERING/DRAINAGE REVIEW	ROCHESTER HILLS	XX/XX/XXXX
--	SOIL EROSION SEDIMENTATION CONTROL PERMIT	OAKLAND COUNTY WRC	XX/XX/XXXX
63042-086111-22	MDOT ROW PERMIT APPROVAL	MDOT	04/23/2024
WRP044129 V.1	PART 303 WETLAND PERMIT	EGLE	XX/XX/XXXX
--	ACT 399 PERMIT (WATER)	EGLE	XX/XX/XXXX
--	PART 41 PERMIT (SANITARY)	EGLE	XX/XX/XXXX
--	NOTICE OF COVERAGE	EGLE	XX/XX/XXXX

Resubmit when most of the permits listed in the index have been obtained. Changes usually occur with the outside agencies reviewing/approving it prior to the permit being issued. The final site condo needs to reflect all these changes prior to approval per the City of Rochester Hills Ordinance.

NOTE: BUILDING PERMITS (BUILDING, ELECTRICAL, PLUMBING, MECHANICAL, ETC.) ARE TRACKED SEPARATELY ON THE ARCHITECTURAL PLANS.

SHEET INDEX	PLAN SUBMITTALS																	
	05/23/2022	11/11/2022	04/28/2023	08/23/2023	09/13/2023	1/22/2024	3/14/2024	3/28/2024	5/17/2024	7/24/2024	8/13/2024	9/4/2024	11/20/2024	4/2/2025	5/29/2025	7/7/2025	8/11/2025	8/20/2025
	CONCEPT SUBMITTAL TO MDOT	PRELIMINARY SITE PLAN SUBMITTAL	REVISED SITE PLAN SUBMITTAL	REVISED SITE PLAN SUBMITTAL	RESUBMIT TO MDOT	REVISED SITE PLAN SUBMITTAL	REVISED SITE PLAN PER CITY AND MDOT	REVISED SITE PLAN PER MDOT	PRELIMINARY SITE PLAN TO CITY	REVISED SITE PLAN / WETLAND FLAGS	REVISED SITE PLAN / WETLAND FLAGS	REV PRELIMINARY SITE PLAN TO CITY	CONSTRUCTION PLAN SUBMITTAL	CONSTRUCTION PLAN RESUBMITTAL	CONSTRUCTION PLAN RESUBMITTAL #2	CONSTRUCTION PLAN RESUBMITTAL #3	WATER AND SANITARY PERMIT PLANS	CONSTRUCTION PLAN RESUBMITTAL #4
	INCLUDED SHEETS																	
<b>GENERAL</b>																		
SHEET G-1.0	COVER																	
<b>SURVEY</b>																		
SHEET V-1.0	SITE SURVEY (BY REICHERT SURVEYING INC)																	
SHEET V-1.1	TOPOGRAPHIC SURVEY - OFFSITE																	
SHEET V-2.0	SOIL BORING LOGS																	
SHEET V-2.1	SOIL BORING LOGS																	
SHEET V-2.2	SOIL BORING LOGS																	
<b>CIVIL DEMOLITION</b>																		
SHEET CD-1.1	DEMOLITION PLAN - NORTH																	
SHEET CD-1.2	DEMOLITION PLAN - SOUTH																	
SHEET CD-1.3	DEMOLITION PLAN - OFFSITE																	
<b>SITE PLAN</b>																		
SHEET C-1.0	SITE PLAN - OVERVIEW																	
SHEET C-1.1	SITE PLAN - BUILDING DATA																	
SHEET C-1.2	DIMENSION AND PAVING PLAN - NORTH																	
SHEET C-1.3	DIMENSION AND PAVING PLAN - SOUTH																	
<b>SITUATIONAL PLANS</b>																		
SHEET C-2.1	FIRE PROTECTION PLAN																	
SHEET C-2.2	CODE ANALYSIS																	
SHEET C-2.3	WETLAND PLAN																	
SHEET C-2.4	WETLAND CROSS SECTIONS																	
<b>SANITARY SEWER PLAN AND PROFILE</b>																		
SHEET C-3.1	STA 0+00 TO 4+00 (ALONG ANGARA DRIVE)																	
SHEET C-3.2	STA 4+00 TO 12+22 (ALONG ANGARA COURT)																	
SHEET C-3.3	STA 12+22 TO 16+49 (OFFSITE TO SOUTH)																	
SHEET C-3.4	STA 0+00 TO 2+94 (ALONG HARVEY STREET)																	
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SHEET C-4.2	WATER MAIN PLAN - SOUTH																	
SHEET C-4.3	WATER MAIN PROFILES																	
SHEET C-4.4	WATER MAIN PROFILES																	
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SHEET C-6.3	ANGARA DRIVE / STORM SEWER PROFILES																	
SHEET C-6.4	ANGARA DRIVE / STORM SEWER PROFILES																	
SHEET C-6.5	STORM SEWER PROFILES																	
SHEET C-6.6	STORM SEWER PROFILES																	
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SHEET C-7.2	GRADING PLAN - SOUTH																	
SHEET C-7.3	GRADING PLAN - OFFSITE																	
SHEETS C-7.4-8	GRADING PLAN - DETAILS A THRU E																	
<b>SOIL EROSION &amp; SEDIMENTATION CONTROL (SESC)</b>																		
SHEET C-8.1	SESC PLAN - NORTH																	
SHEET C-8.2	SESC PLAN - SOUTH																	
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SHEET C-8.4	OAKLAND COUNTY SESC NOTES AND DETAILS																	
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SHEET C-10.2	MOT PLAN																	
SHEET C-10.3	EXISTING CONDITIONS AND REMOVAL PLAN																	
SHEET C-10.4	CONSTRUCTION PLAN																	
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SHEET C-10.6	PAVEMENT MARKING AND SIGNAGE PLAN																	
<b>DETAILS</b>																		
SHEET C-11.0	DETAILS																	
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SHEET C-11.2	MDOT R-29																	
<b>SPECIFICATIONS</b>																		
SHEET C-12.0	SPECIFICATIONS																	
SHEET C-12.1	SPECIFICATIONS																	
<b>LANDSCAPE</b>																		
SHEET L-1	TREE REMOVAL AND PRESERVATION PLAN NORTH																	
SHEET L-2	TREE REMOVAL AND PRESERVATION PLAN SOUTH																	
SHEET L-3	TREE LIST																	
SHEET L-4	LANDSCAPE PLAN NORTH																	
SHEET L-5	LANDSCAPE PLAN SOUTH																	
SHEET L-6	ENLARGEMENTS AND LANDSCAPE DETAILS																	

CITY OF ROCHESTER HILLS, OAKLAND COUNTY STANDARD DETAILS



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**CLIENT:**  
AUBURN ANGARA OAKS, LLC  
14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BR



# SITE SURVEY

**LEGAL DESCRIPTION:**  
**PARCEL "1":**  
 LOTS 10 AND 13, SUPERVISOR'S P.O.F GRANT M. JOHN'S SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN L.54A OF PLATS, PAGE(S) 61, O.C.R.

**PARCEL "2":**  
 LOT 11, SUPERVISOR'S PLAT OF GRANT M. JOHN'S SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 54A OF PLATS, PAGE(S) 61, OAKLAND COUNTY RECORDS.

**PARCEL "3":**  
 LOT 12, SUPERVISOR'S P.O.F GRANT M. JOHN'S SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN L.54A OF PLATS, PAGE(S) 61, O.C.R.

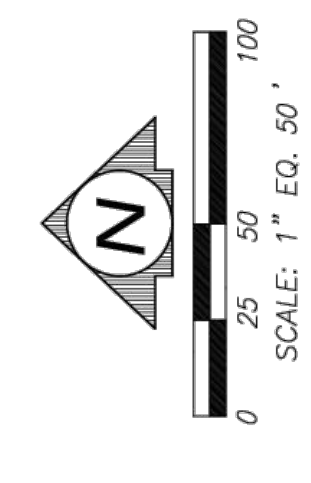
**PARCEL "4":**  
 LOT 15 AND THE SOUTH 28 FEET OF LOT 14, TOGETHER WITH AN EASEMENT FOR INGRESS AND EGRESS IN THE EAST 12 FEET OF LOT 14 SUPERVISOR'S P.O.F GRANT M. JOHN'S SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN L.54A OF PLATS, PAGE(S) 61, O.C.R.

**AS TO PARCEL "1"**  
 11. EASEMENTS OVER SUBJECT PROPERTY AS SHOWN ON 11. THE RECORDED PLAT.  
 12. TERMS AND CONDITIONS OF RIGHT OF WAY AS RECITED IN INSTRUMENT RECORDED IN L.1301, P.227, O.C.R.  
 13. TERMS AND CONDITIONS OF PEDESTRIAN BICYCLE PATH EASEMENT AND CONVEYANCE AS RECITED IN INSTRUMENT RECORDED IN L.8692, P.391, O.C.R.  
 14. TERMS AND CONDITIONS OF WATER EASEMENT AND CONVEYANCE AS RECITED IN INSTRUMENT RECORDED IN L.8237, P.691, O.C.R.  
 15. TERMS AND CONDITIONS OF ORDER OF NECESSITY AS RECITED IN INSTRUMENT RECORDED IN L.7398, P.469, O.C.R.

**AS TO PARCEL "2"**  
 11. TERMS AND CONDITIONS OF ORDER OF DEFAULT AND RIGHT OF ENTRY AS RECITED 11. IN INSTRUMENT RECORDED IN L.7187, P.685, O.C.R.  
 12. EASEMENTS OVER SUBJECT PROPERTY AS SHOWN ON THE RECORDED PLAT.  
 13. TERMS AND CONDITIONS OF PEDESTRIAN/BICYCLE PATHWAY EASEMENT AS RECITED IN INSTRUMENT RECORDED IN L.11290, P.859, O.C.R.

**AS TO PARCEL "3"**  
 12. EASEMENTS OVER SUBJECT PROPERTY AS SHOWN ON 12. THE RECORDED PLAT.  
 13. TERMS AND CONDITIONS OF RIGHT OF WAY AS RECITED IN INSTRUMENTS RECORDED IN L.1301, P.227, L.2004, P.484, L.2736, P.268, O.C.R.  
 14. TERMS AND CONDITIONS OF PEDESTRIAN BICYCLE PATH EASEMENT AND CONVEYANCE AS RECITED 14. IN INSTRUMENT RECORDED IN L.8692, P.391, O.C.R.  
 15. TERMS AND CONDITIONS OF WATER EASEMENT AND CONVEYANCE AS RECITED IN INSTRUMENT RECORDED IN L.8237, P.691, O.C.R.  
 16. TERMS AND CONDITIONS OF ORDER OF NECESSITY AS RECITED IN INSTRUMENT RECORDED IN L.7398, P.469, O.C.R.  
 17. RIGHTS OR CLAIMS OF PARTIES IN POSSESSION NOT SHOWN OF RECORD.

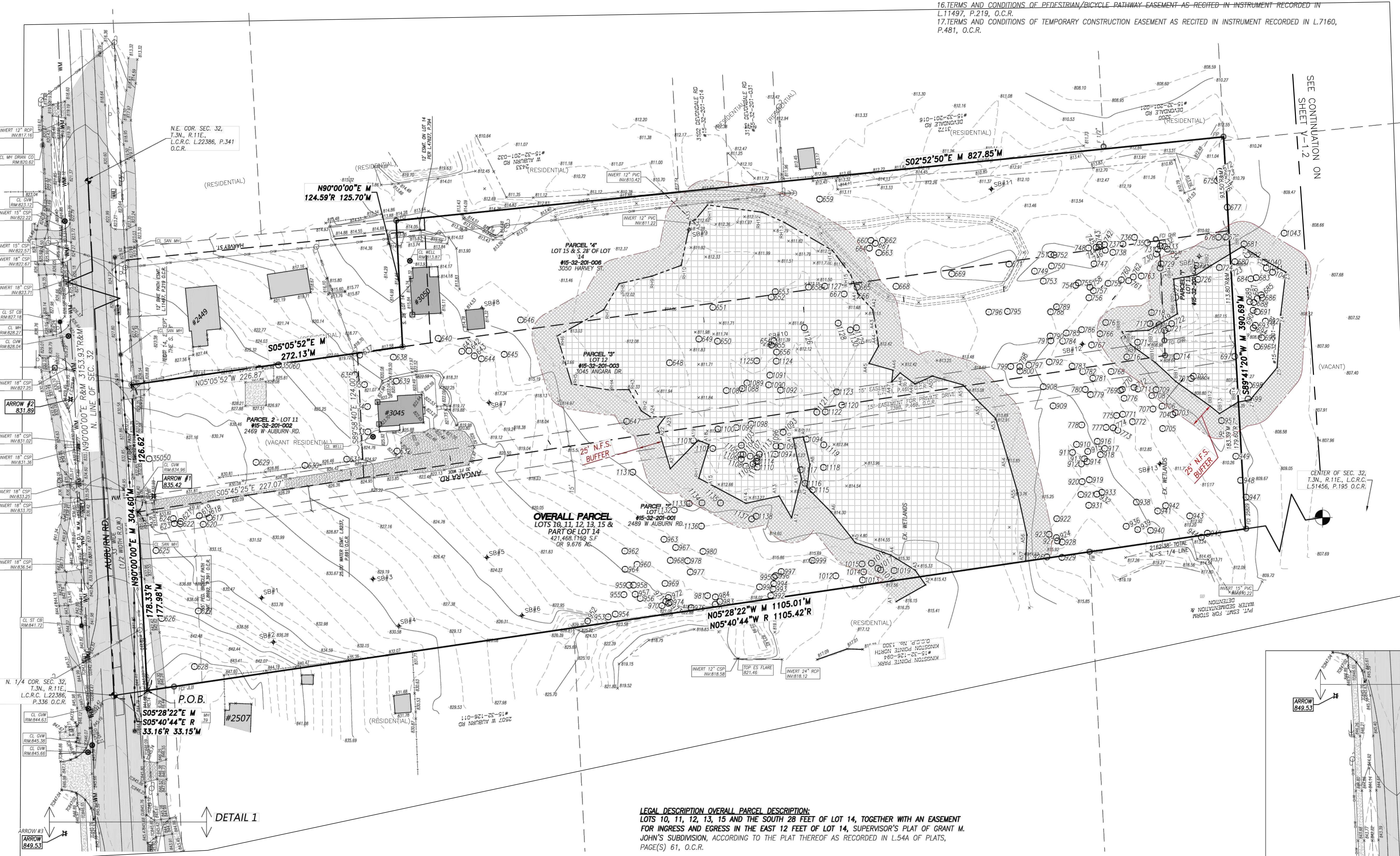
**AS TO PARCEL "4"**  
 11. TERMS AND CONDITIONS OF UTILITY OBLIGATION AGREEMENT AS RECITED IN INSTRUMENT 11. RECORDED IN L.8544, P.556, O.C.R.  
 12. TERMS AND CONDITIONS OF ORDER OF DEFAULT AND RIGHT OF ENTRY AS RECITED IN INSTRUMENT RECORDED IN L.7187, P.685, O.C.R.  
 13. SUBJECT PROPERTY ABUTS A PRIVATE ROAD EASEMENT WHICH IS NOT REQUIRED TO BE MAINTAINED BY THE BOARD OF COUNTY ROAD COMMISSIONERS OF THE COUNTY OF OAKLAND.  
 14. TERMS AND CONDITIONS OF PRIVATE ROAD AS RECITED IN INSTRUMENT RECORDED IN L.47627, P.794, O.C.R.  
 15. TERMS AND CONDITIONS OF ORDER OF NECESSITY AS RECITED IN INSTRUMENT RECORDED IN L.7398, P.469, O.C.R.  
 16. TERMS AND CONDITIONS OF PEDESTRIAN/BICYCLE PATHWAY EASEMENT AS RECITED IN INSTRUMENT RECORDED IN L.11497, P.219, O.C.R.  
 17. TERMS AND CONDITIONS OF TEMPORARY CONSTRUCTION EASEMENT AS RECITED IN INSTRUMENT RECORDED IN L.7160, P.481, O.C.R.



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- LEGEND:**
- FOUND IRON
  - SET IRON
  - R RECORD DISTANCE
  - M MEASURED DISTANCE
  - ▨ EXISTING GRAVEL
  - ▩ EXISTING PAVER STONE
  - ▧ EXISTING BUILDING
  - ▦ EXISTING CONCRETE
  - ▤ EXISTING ASPHALT
  - ▥ EXISTING LANDSCAPED AREA
  - ▧ EXISTING STORM SEWER
  - ▩ EXISTING SANITARY SEWER
  - ▨ EXISTING WATERMAIN
  - ▧ EXISTING OVERHEAD WIRES
  - ▩ EXISTING FENCE
  - EXISTING UTILITY POLE
  - ⊕ EXISTING WATER SHUT OFF
  - ⊕ EXISTING GATE VALVE
  - ⊕ EXISTING HYDRANT
  - ⊕ EXISTING WELL
  - ⊕ EXISTING GAS SHUT OFF
  - ⊕ EXISTING SANITARY STRUCTURE
  - ⊕ EXISTING STORM STRUCTURE
  - ⊕ EXISTING DOWN SPOUT
  - ⊕ EXISTING UTILITY PEDESTAL
  - ⊕ EXISTING GRADE

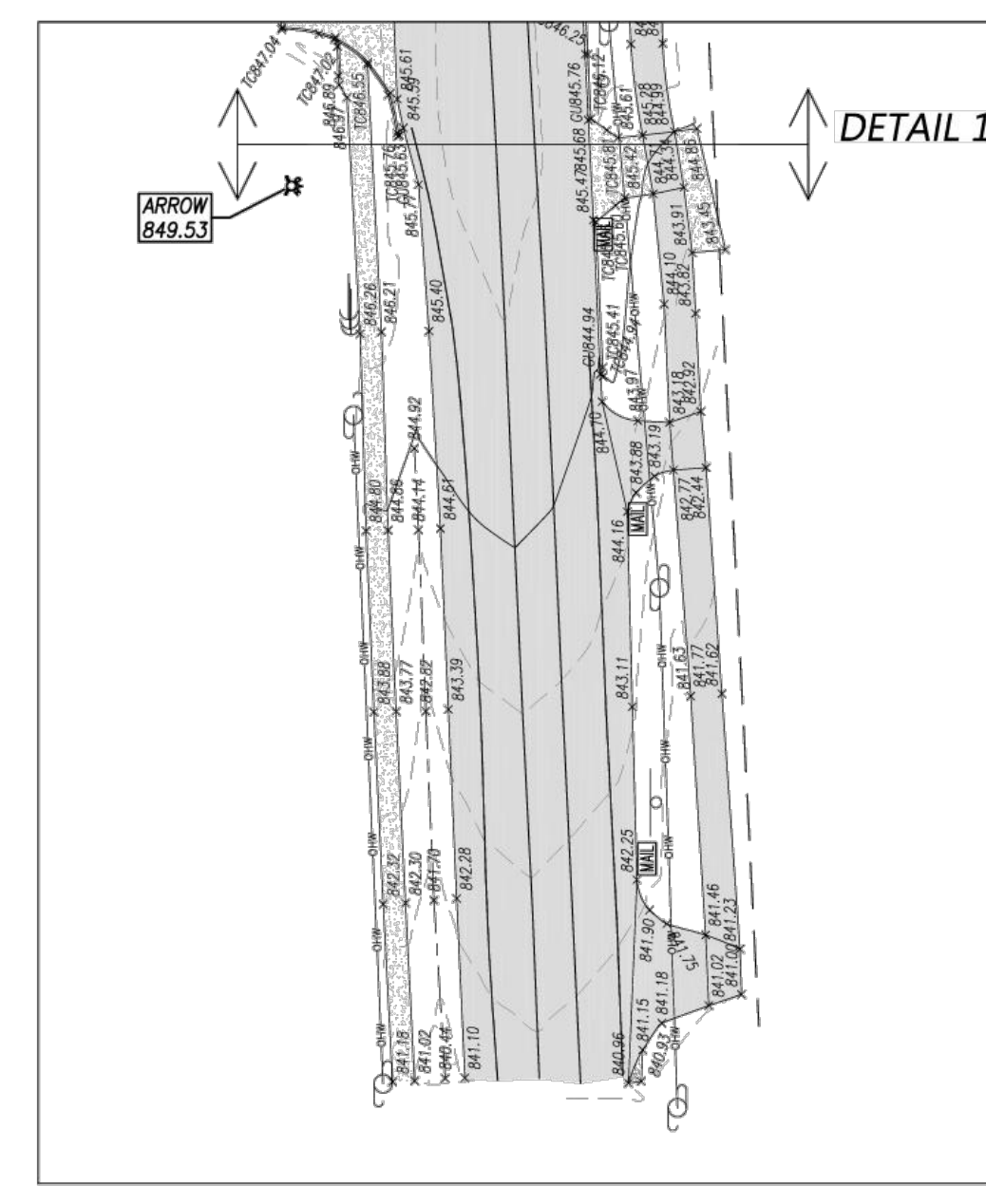
**FLAGGING FOR THE NORTH AND EAST LIMITS OF WETLAND A RE-FLAGGED BY ASTI ENVIRONMENTAL ON 8/1/2024 (FLAGS WITH "RH").**

**FLAGGING FOR WETLAND A AND NORTH LIMITS OF WETLAND B PERFORMED 7/09/2024 BY BARR ENGINEERING.**

**INSPECTION OF AND FLAGGING FOR OFFSITE SANITARY SEWER ROUTE, INCLUDING THE SOUTH LIMITS OF WETLAND B, PERFORMED 10/31/23 BY BARR ENGINEERING.**

**NO OTHER WETLANDS WERE ENCOUNTERED BY BARR ENGINEERING ALONG THE ROUTE OF THE SANITARY SEWER.**

SEE LANDSCAPE PLANS FOR TREE SURVEY AND REMOVAL/REPLACEMENT



**LEGAL DESCRIPTION OVERALL PARCEL DESCRIPTION:**  
 LOTS 10, 11, 12, 13, 15 AND THE SOUTH 28 FEET OF LOT 14, TOGETHER WITH AN EASEMENT FOR INGRESS AND EGRESS IN THE EAST 12 FEET OF LOT 14, SUPERVISOR'S PLAT OF GRANT M. JOHN'S SUBDIVISION, ACCORDING TO THE PLAT THEREOF AS RECORDED IN L.54A OF PLATS, PAGE(S) 61, O.C.R.

PART OF THE NORTHEAST 1/4 OF SECTION 32, TOWN 3 NORTH, RANGE 11 EAST, CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS COMMENCING AT THE NORTH 1/4 CORNER OF SAID SECTION 32; THENCE S.05°28'22"E., 33.15 FT. TO THE SOUTH RIGHT OF WAY LINE OF AUBURN ROAD AND POINT OF BEGINNING; THENCE PROCEEDING ALONG SOUTH RIGHT OF WAY LINE N.90°00'00"E., 304.60 FT.; THENCE S.05°05'52"E., 272.13 ALONG THE EAST LINE OF LOT 11; THENCE N.90°00'00"E., 125.70 FT.; THENCE S.02°52'50"E., 827.85 FT. ALONG THE EAST LINE OF LOTS 14 & 15; THENCE S.89°41'20"W., 390.69 FT. ALONG THE SOUTH LINE OF LOTS 15, 13 AND 10; THENCE N.05°28'22"W., 1105.01 FT. ALONG THE WEST LINE OF LOT 10 TO THE POINT OF BEGINNING. CONTAINING 9.026 ACRES (NET AREA).  
 RESERVED THEREFROM ALL EASEMENTS AND RIGHT OF WAYS OF RECORD.

**BENCHMARK:**  
 BM #1 ARROW ATOP FIRE HYDRANT AT THE N.W. CORNER OF LOT 11 ELEVATION 835.42 N.A.V.D. 88 DATUM  
 BM #2 ARROW ATOP FIRE HYDRANT N. SIDE OF AUBURN ROAD OPPOSITE N.E. CORNER OF LOT 11 ELEVATION 831.89 N.A.V.D. 88 DATUM  
 BM #3 ARROW ATOP FIRE HYDRANT ON NORTH SIDE OF AUBURN ROAD APPROXIMATELY 130 FEET WEST OF SITE. ELEVATION 849.53 N.A.V.D. 88 DATUM

**SITE SURVEY**  
 LOTS 10-13, THE S. 28 FT. OF LOT 14 AND LOT 15 OF "SUPERVISOR'S P.O.F GRANT M. JOHN'S SUBDIVISION", ACCORDING TO THE PLAT THEREOF AS RECORDED IN L.54 OF PLATS, PAGE(S) 61, O.C.R.

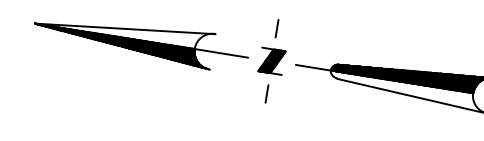
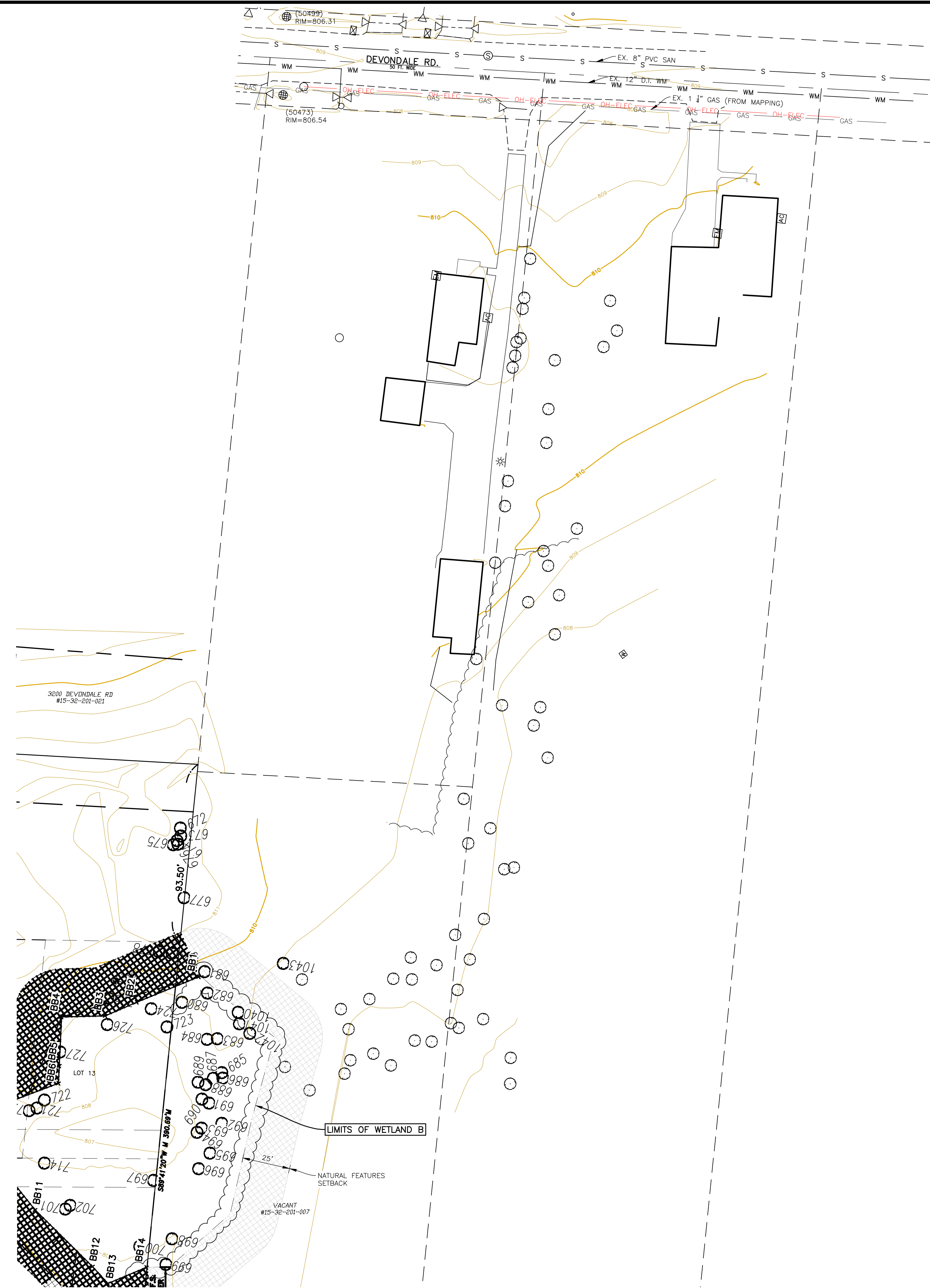
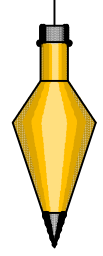
PREPARED FOR:  
**THREE OAKS COMMUNITIES, LLC**  
 P.O. BOX 8307  
 ANN ARBOR, MI 48107  
 (248) 703-4653



NO.	DATE	DESCRIPTION	BY
1	1/15/23	REV PER CITY	GHR
2	7/25/23	REV PER OWNER	PKR
3	9/25/23	REV LEGAL DESCRIPTION	PKR
4	11/1/23	ADD NEW PARCEL	PKR
5	1/21/24	ADD PARCEL TWO LABELS	PKR
6	3/14/24	REV WETLANDS FLAGS	PKR

SCALE: 1"=50' DRAWN: B.G.R.  
 DATE: 9/20/21 CHECK: G.H.R.  
 JOB # 21-068 SHEET: V-10





### EXISTING LEGEND (THIS SHEET ONLY)

	DECIDUOUS TREE, CONIFEROUS TREE, SHRUB
	TREE LINE/ CANOPY
	DITCH/ DRAINING COURSE
	UG TELE, MH, TELE PED, CABLE PED
	UG FIBER, PED, LINE MARKER, VAULT
	UG ELEC, MH, TRANSFORMER, AC UNIT, METER, BOX
	OH ELEC, UTIL POLE, GUY WIRE
	GROUND LIGHT, POLE, POLE W/ ARM LT
	LIGHT MH, LT CTRL BOX, PARK, METER, CAR CHARGER
	ELEC HAND HOLE, OUTLET, SIGNAL MH, SIGNAL BOX
	UG GAS, MH, VALVE, LINE MARKER
	GAS WELL, METER, VENT
	WATER MAIN, MH, VALVE IN BOX, HYDRANT, FDC
	WATER WELL, METER, STOP BOX, POST INDICATOR VALVE
	IRRIGATION CONTROL VALVE, SPRINKLER HEAD
	STORM SEWER, MH, CB, INLET, YARD DRAIN, DOWN SPOUT
	CULVERT/ END SECTION
	SANITARY SEWER, MH, CLEAN OUT
	COMBINED SEWER, MH
	STEAM LINE, MH
	MISC. MANHOLE, HAND HOLE, HAND BOX
	PARKING BLOCK, SIGN, FLAG POLE, POST, ROCK, MAIL BOX
	SECTION LINE, SECTION CORNER
	FOUND IRON ROD (FIR), FD MON, FD PK
	SET IRON ROD (SIR), SET PK, MAG NAIL
	FINISH FLOOR ELEVATION, SPOT ELEVATION
	CONTOUR
	FENCE
	GUARD RAIL
	RAILROAD SIGNAL, SIGNAL BOX
	SOIL BORING

FLAGGING FOR THE NORTH LIMITS OF WETLAND B PERFORMED 7/09/2024 BY BARR ENGINEERING.

INSPECTION OF AND FLAGGING FOR OFFSITE SANITARY SEWER ROUTE, INCLUDING THE SOUTH LIMITS OF WETLAND B, PERFORMED 10/31/23 BY BARR ENGINEERING.

NO OTHER WETLANDS WERE ENCOUNTERED BY BARR ENGINEERING ALONG THE ROUTE OF THE SANITARY SEWER.

SEE LANDSCAPE PLANS FOR TREE SURVEY AND REMOVAL/REPLACEMENT

INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS

298 VETERANS DRIVE  
FOWLERVILLE, MICHIGAN 48836  
(OFFICE) 517-223-3512  
MONUMENTENGINEERING.COM

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CLIENT :

**AUBURN ANGARA OAKS, LLC**

14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**TOPOGRAPHIC SURVEY**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/20/2024
ADDED WETLAND CONTS. EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #2	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #3	05/29/2025
WATER AND SANITARY PERMIT PLANS	07/07/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/01/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/29/2025

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

SCALE: 1" = 30'

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**V-11**

NOT FOR CONSTRUCTION



**McDOWELL & ASSOCIATES**  
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21355 Haecher Avenue • Ferndale, MI 48220  
Phone: (248) 399-2066 • Fax: (248) 399-2157

**LOG OF SOIL BORING NO. 1**  
PROJECT: Soils Investigation  
LOCATION: 2489 West Auburn Road  
Rochester Hills, Michigan  
DATE: 7-11-22

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows ft. #	Moisture %	Natural Wt. P.C.P.	Dry Den Wt. P.C.P.	Unc. Comp. Strength P.S.F.	Gr. %
	1		Moist dark brown sandy TOPSOIL with vegetation and gravel, fill						
A	2			4	6.1	109			
UL	3		Compact moist brown SAND with trace of silt and gravel	5					
	4								
B	5		Very compact moist brown SAND with traces of silt and gravel	5	4.7	---			
UL	6			7					
	7								
C	7		Compact wet brown fine SAND with trace of silt and occasional trace of gravel	3	19.2	117			
UL	8			3					
	9								
D	10		Very compact wet brown SAND with traces of silt and gravel	3	21.1	110			
UL	11			5					
	12								
	13								
E	14		Extremely compact wet brown gravelly SAND with trace of silt and occasional wet silt seams	11					
UL	15			17					
	16			19					
	17								
	18								
F	19		Extremely compact wet grey silty gravelly SAND	5					
UL	20			10					
	21			19					
	22								
	23								
G	24								
UL	25								

Notes:  
1) Used automatic hammer

TYPE OF SAMPLE: D - DISTURBED, UL - UNDIST. LINER, S.T. - SHELBY TUBE, S.S. - SPUT SPOON, R.C. - ROCK CORE, ( ) - PENETROMETER

REMARKS: \*Calibrated penetrometer

GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT 6 FT., 1 INS.; G.W. ENCOUNTERED AT 4 FT., 4 INS.; G.W. AFTER COMPLETION 4 FT., 4 INS.; G.W. AFTER HRS. FT., INS.; G.W. VOLUMES Medium

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**LOG OF SOIL BORING NO. 2**  
PROJECT: Soils Investigation  
LOCATION: 2489 West Auburn Road  
Rochester Hills, Michigan  
DATE: 7-9-22

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows ft. #	Moisture %	Natural Wt. P.C.P.	Dry Den Wt. P.C.P.	Unc. Comp. Strength P.S.F.	Gr. %
	1		Moist dark brown sandy TOPSOIL						
A	2		Moist brown fine SAND with trace of silt	4	12.0	---			
UL	3		Stiff moist brown silty sandy CLAY with pebbles	4					
	4								
B	4		Medium compact moist brown fine SAND with traces of gravel and silt	2	5.9	---			
UL	5			2					
	6								
C	7		Compact moist light brown fine SAND with trace of silt	1	3.2	---			
UL	8			2					
	9								
D	10		Extremely compact moist to wet brown silty SAND with layers of silt and sand	3	16.5	124			
UL	11			3					
	12								
	13								
E	14		Very compact wet brown silty fine SAND	6					
UL	15			8					
	16			10					
	17								
	18								
F	19								
UL	20								
	21								
	22								
	23								
G	24								
UL	25								

Notes:  
1) Used automatic hammer

TYPE OF SAMPLE: D - DISTURBED, UL - UNDIST. LINER, S.T. - SHELBY TUBE, S.S. - SPUT SPOON, R.C. - ROCK CORE, ( ) - PENETROMETER

REMARKS: \*Calibrated penetrometer

GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT 9 FT., 2 INS.; G.W. ENCOUNTERED AT 13 FT., 1 INS.; G.W. AFTER COMPLETION 13 FT., 1 INS.; G.W. AFTER HRS. FT., INS.; G.W. VOLUMES Medium

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**LOG OF SOIL BORING NO. 3**  
PROJECT: Soils Investigation  
LOCATION: 2489 West Auburn Road  
Rochester Hills, Michigan  
DATE: 7-11-22

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows ft. #	Moisture %	Natural Wt. P.C.P.	Dry Den Wt. P.C.P.	Unc. Comp. Strength P.S.F.	Gr. %
	1		Moist dark brown sandy TOPSOIL, fill						
A	2		Compact moist brown silty fine SAND with trace of gravel and occasional stones, fill	6	13.7	---			
UL	3			4					
	4								
B	4		Stiff moist brown silty sandy CLAY with trace of pebbles	6	14.8	132			
UL	5			9					
	6		Extremely stiff moist variegated silty CLAY with trace of sand & pebbles	15					(9000+)
	7								
C	7		Extremely stiff moist blue silty CLAY with trace of sand & pebbles	8	12.9	140			
UL	8			17					(9000+)
	9								
D	9		Extremely compact wet grey silty gravelly SAND with moist blue silty clay seams	8	10.4	137			
UL	10			10					
	11			13					
	12								
	13								
E	14		Extremely compact wet grey SAND & GRAVEL	3					
UL	15			8					
	16		Extremely stiff moist blue silty CLAY with sand & pebbles	12					
	17			18					
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

Notes:  
1) Used automatic hammer

TYPE OF SAMPLE: D - DISTURBED, UL - UNDIST. LINER, S.T. - SHELBY TUBE, S.S. - SPUT SPOON, R.C. - ROCK CORE, ( ) - PENETROMETER

REMARKS: \*Calibrated penetrometer

GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT 7 FT., 10 INS.; G.W. ENCOUNTERED AT 9 FT., 9 INS.; G.W. AFTER COMPLETION 9 FT., 9 INS.; G.W. AFTER HRS. FT., INS.; G.W. VOLUMES Heavy

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**LOG OF SOIL BORING NO. 4**  
PROJECT: Soils Investigation  
LOCATION: 2489 West Auburn Road  
Rochester Hills, Michigan  
DATE: 7-9-22

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows ft. #	Moisture %	Natural Wt. P.C.P.	Dry Den Wt. P.C.P.	Unc. Comp. Strength P.S.F.	Gr. %
	1		Moist dark brown sandy TOPSOIL						
A	2		Moist brown fine SAND with trace of gravel	3	14.0	121			
UL	3		Stiff moist variegated silty CLAY with sand & pebbles and fine sand seams	4					(7500)
	4								
B	4		Very stiff moist variegated silty CLAY with sand & pebbles	7	15.8	131			
UL	5			11					(8000+)
	6		Extremely compact wet brown silty fine SAND	20					
	7		Extremely stiff moist blue silty CLAY with sand & pebbles and wet sand lenses	11	12.2	137			
UL	8			14					(9000+)
	9								
D	9		Extremely compact wet brown silty fine SAND	4					
UL	10			9					
	11			11					
	12								
	13								
E	14		Extremely compact wet grey silty fine SAND with wet silt seams	5					
UL	15			10					
	16			11					
	17								
	18								
F	19		Compact wet grey fine SAND with trace of gravel	3					
UL	20			7					
	21			9					
	22								
	23								
	24								
	25								

Notes:  
1) Used automatic hammer

TYPE OF SAMPLE: D - DISTURBED, UL - UNDIST. LINER, S.T. - SHELBY TUBE, S.S. - SPUT SPOON, R.C. - ROCK CORE, ( ) - PENETROMETER

REMARKS: \*Calibrated penetrometer

GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT 4 FT., 10 INS.; G.W. ENCOUNTERED AT 5 FT., 2 INS.; G.W. AFTER COMPLETION 5 FT., 2 INS.; G.W. AFTER HRS. FT., INS.; G.W. VOLUMES Heavy

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**LOG OF SOIL BORING NO. 5**  
PROJECT: Soils Investigation  
LOCATION: 2489 West Auburn Road  
Rochester Hills, Michigan  
DATE: 7-11-22

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows ft. #	Moisture %	Natural Wt. P.C.P.	Dry Den Wt. P.C.P.	Unc. Comp. Strength P.S.F.	Gr. %
	1		Moist dark brown sandy TOPSOIL, fill						
A	2		Medium compact moist brown fine SAND with trace of gravel and topsoil streaks, fill	2	14.7	---			
UL	3			2					(1500)
	4								
B	4		Firm moist variegated silty CLAY with trace of sand & pebbles and moist fine sand seams	3	12.6	132			
UL	5			2					(1500)
	6								
C	7		Firm moist brown silty sandy CLAY with silt and trace of pebbles	2	11.4	140			
UL	8			2					(1500)
	9								
D	9		Soft moist blue silty CLAY with trace of sand & pebbles	1	11.4	142			
UL	10		Stiff moist brown silty CLAY with trace of sand & pebbles	2					(2500)
	11			4					
	12								
	13		Compact wet brown fine SAND with trace of silt						
E	14		Very compact wet brown fine SAND	2					
UL	15			9					
	16			15					
	17		Extremely compact wet grey fine SAND						
	18								
	19		Extremely stiff moist blue silty CLAY with traces of sand & pebbles	4					
F	20			25					
UL	21			37					
	22								
	23								
	24								
	25								

Notes:  
1) Used automatic hammer

TYPE OF SAMPLE: D - DISTURBED, UL - UNDIST. LINER, S.T. - SHELBY TUBE, S.S. - SPUT SPOON, R.C. - ROCK CORE, ( ) - PENETROMETER

REMARKS: \*Calibrated penetrometer

GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT 5 FT., 2 INS.; G.W. ENCOUNTERED AT 10 FT., 9 INS.; G.W. AFTER COMPLETION 6 FT., 2 INS.; G.W. AFTER HRS. FT., INS.; G.W. VOLUMES Heavy

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**LOG OF SOIL BORING NO. 6**  
PROJECT: Soils Investigation  
LOCATION: 2489 West Auburn Road  
Rochester Hills, Michigan  
DATE: 7-9-22

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration Blows ft. #	Moisture %	Natural Wt. P.C.P.	Dry Den Wt. P.C.P.	Unc. Comp. Strength P.S.F.	Gr. %
	1		Moist dark brown sandy TOPSOIL, fill						
A	2		Medium compact moist brown clayey fine SAND with topsoil streaks, fill	2	9.9	132			
UL	3		Stiff moist brown silty CLAY with trace of sand & pebbles	4					(6500)
	4			7					
B	4		Firm moist variegated silty CLAY with sand & pebbles and moist fine sand seams	2	13.8	135			
UL	5			2					(2500)
	6								
C	7		Firm moist variegated silty CLAY with sand & pebbles and moist fine sand seams	1	11.9	140			
UL	8			2					(1000)
	9								
D	9		Stiff moist blue silty CLAY with sand & pebbles	5	15.5	124			
UL	10			11					
	11		Extremely compact wet brown silty fine SAND	15					
	12								
	13								
	14								
E	14		Extremely compact wet grey silty fine SAND	4					
UL	15			16					
	16								
	17								
	18								
	19								
	20								
	21								
	22								
	23								
	24								
	25								

Notes:  
1) Used automatic hammer

TYPE OF SAMPLE: D - DISTURBED, UL - UNDIST. LINER, S.T. - SHELBY TUBE, S.S. - SPUT SPOON, R.C. - ROCK CORE, ( ) - PENETROMETER

REMARKS: \*Calibrated penetrometer

GROUND WATER OBSERVATIONS: G.W. ENCOUNTERED AT 9 FT., 5 INS.; G.W. ENCOUNTERED AT 10 FT., 9 INS.; G.W. AFTER COMPLETION 6 FT., 7 INS.; G.W. AFTER HRS. FT., INS.; G.W. VOLUMES Heavy

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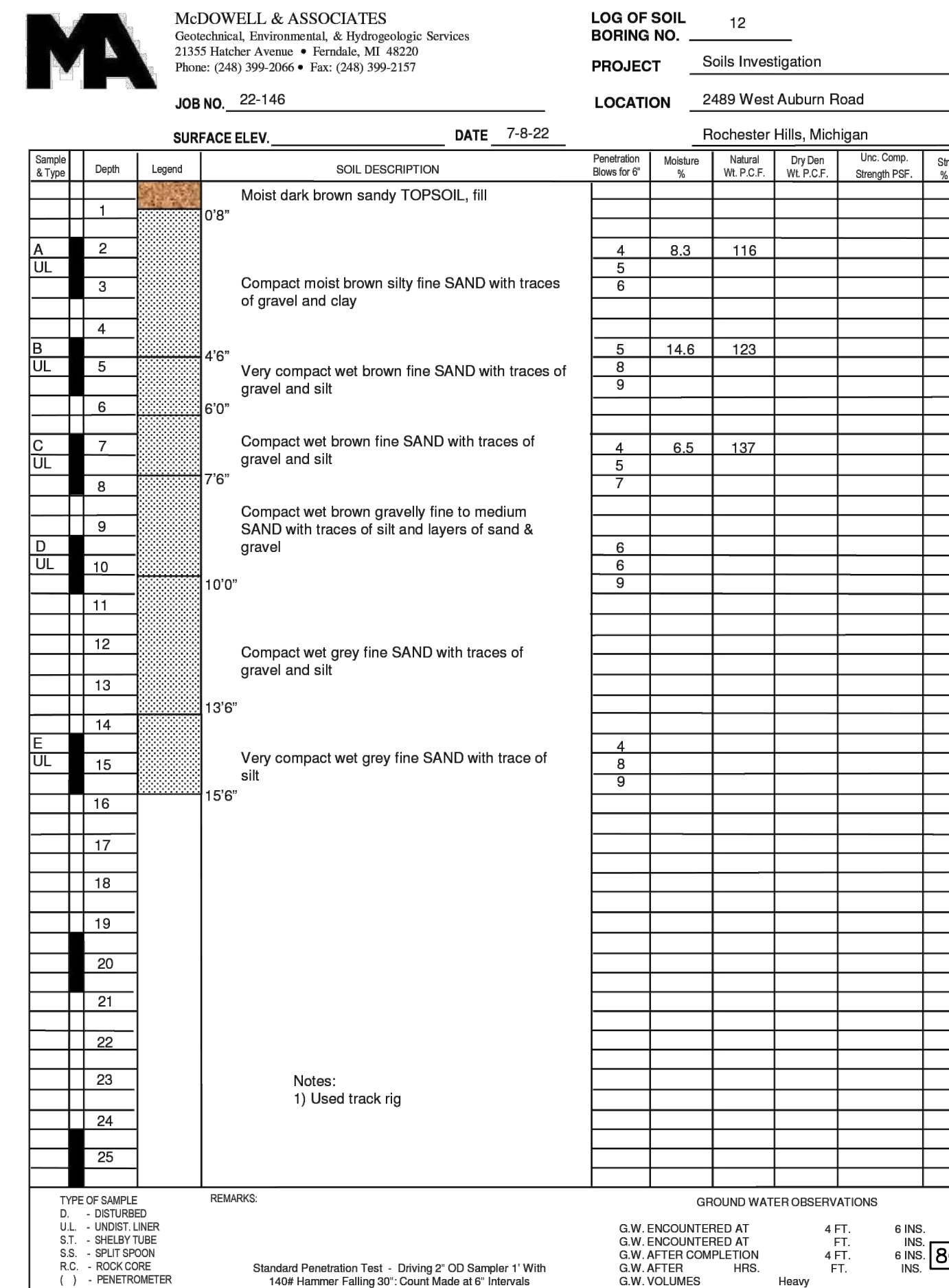
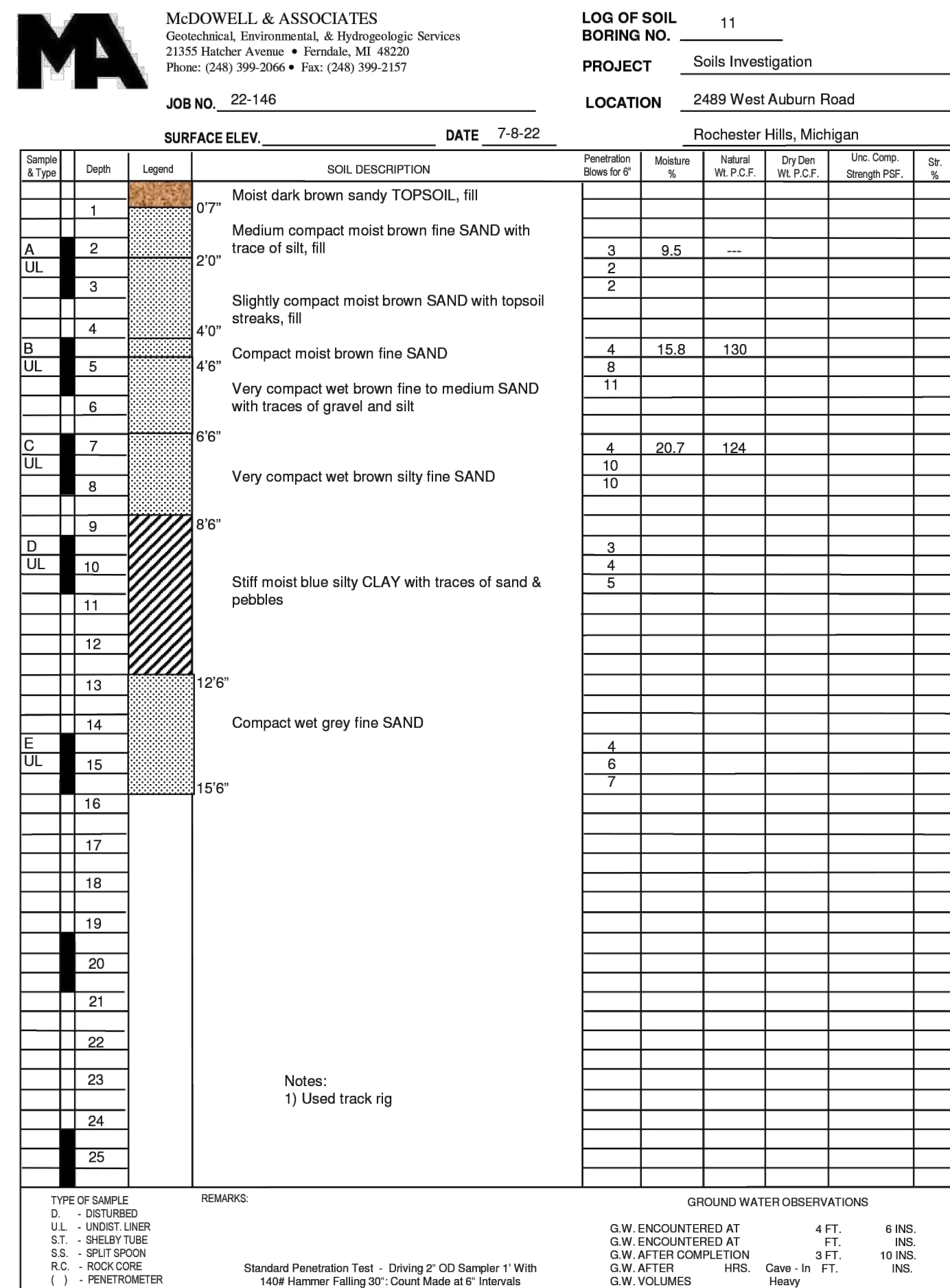
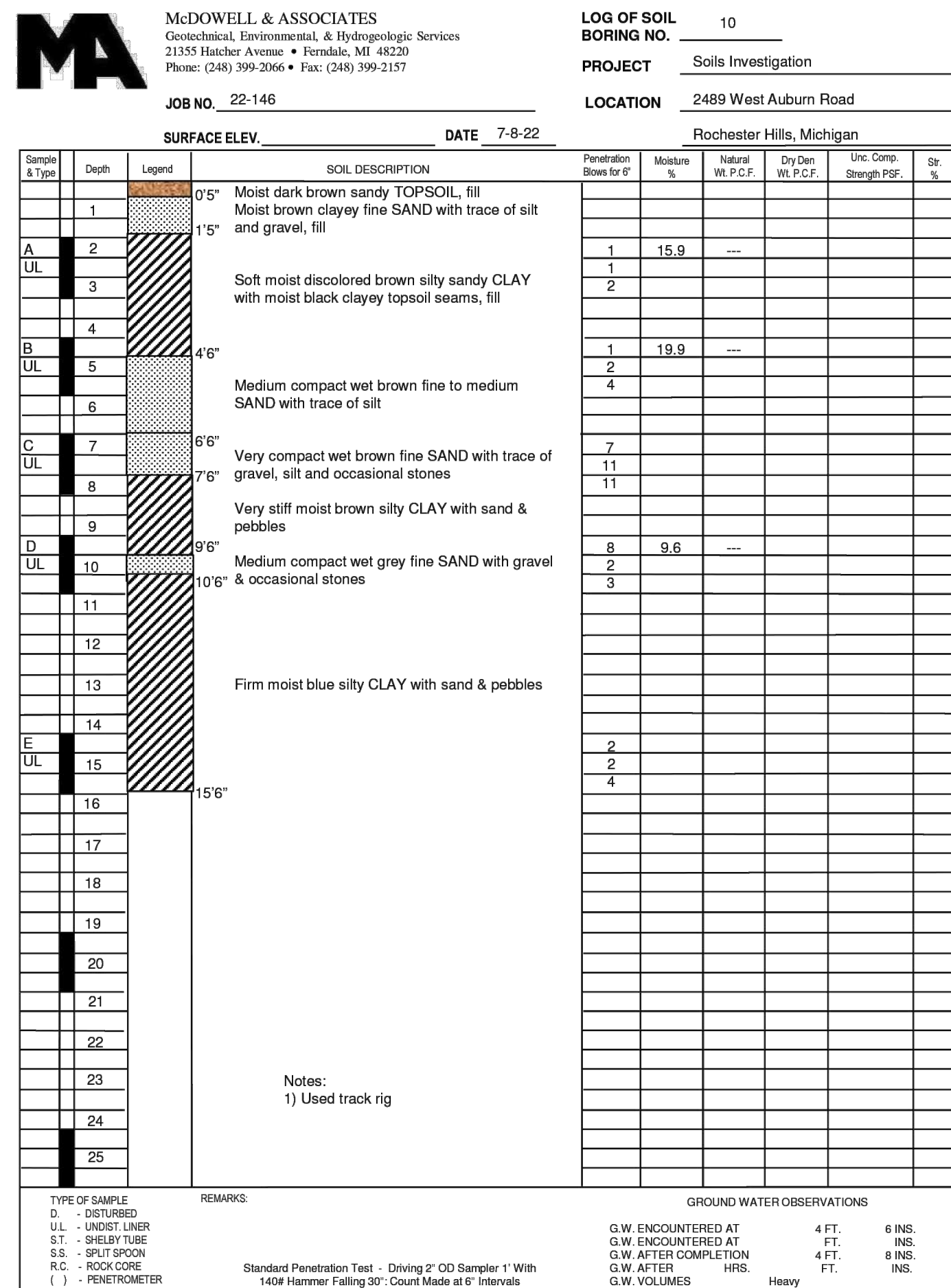
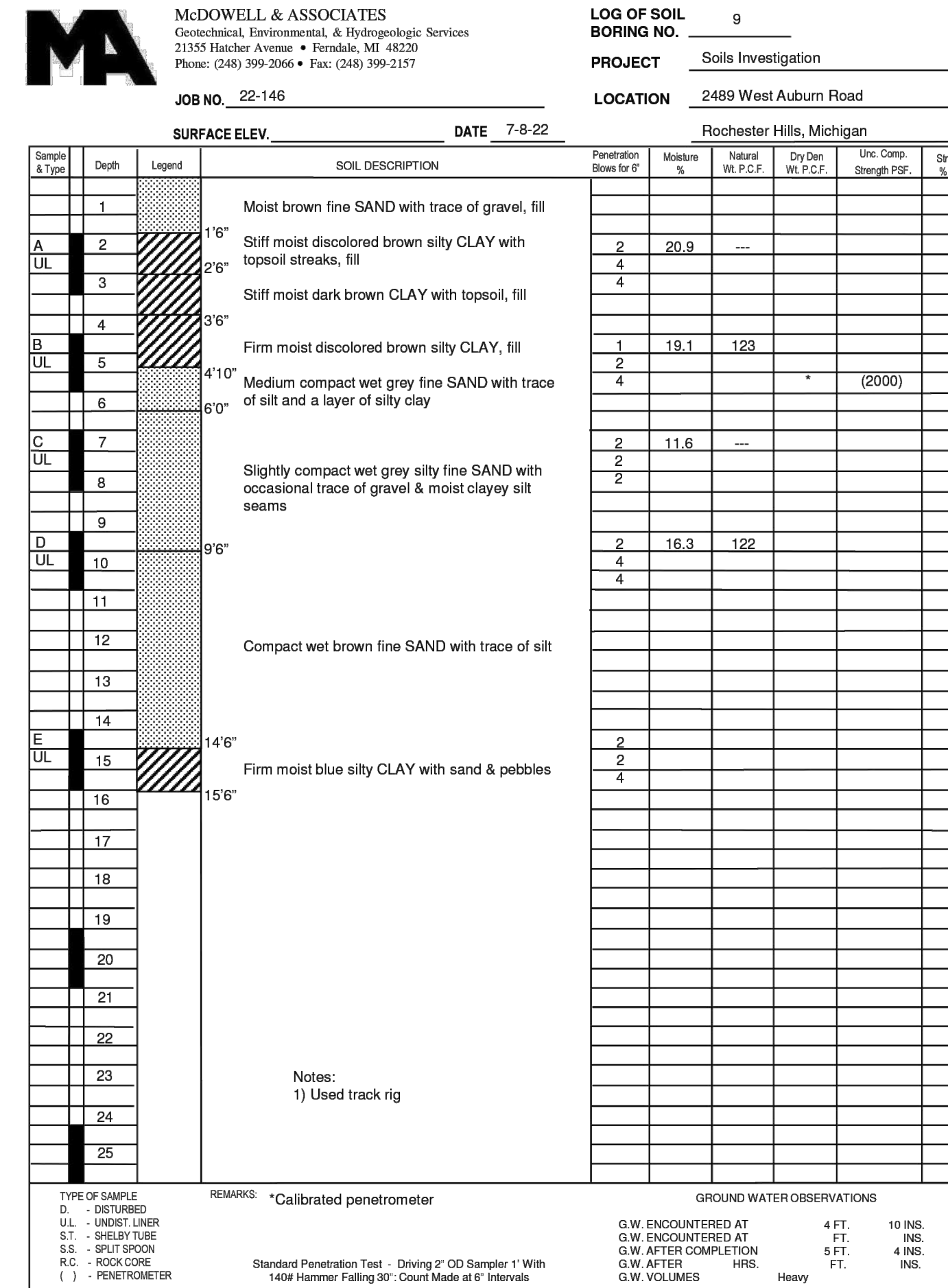
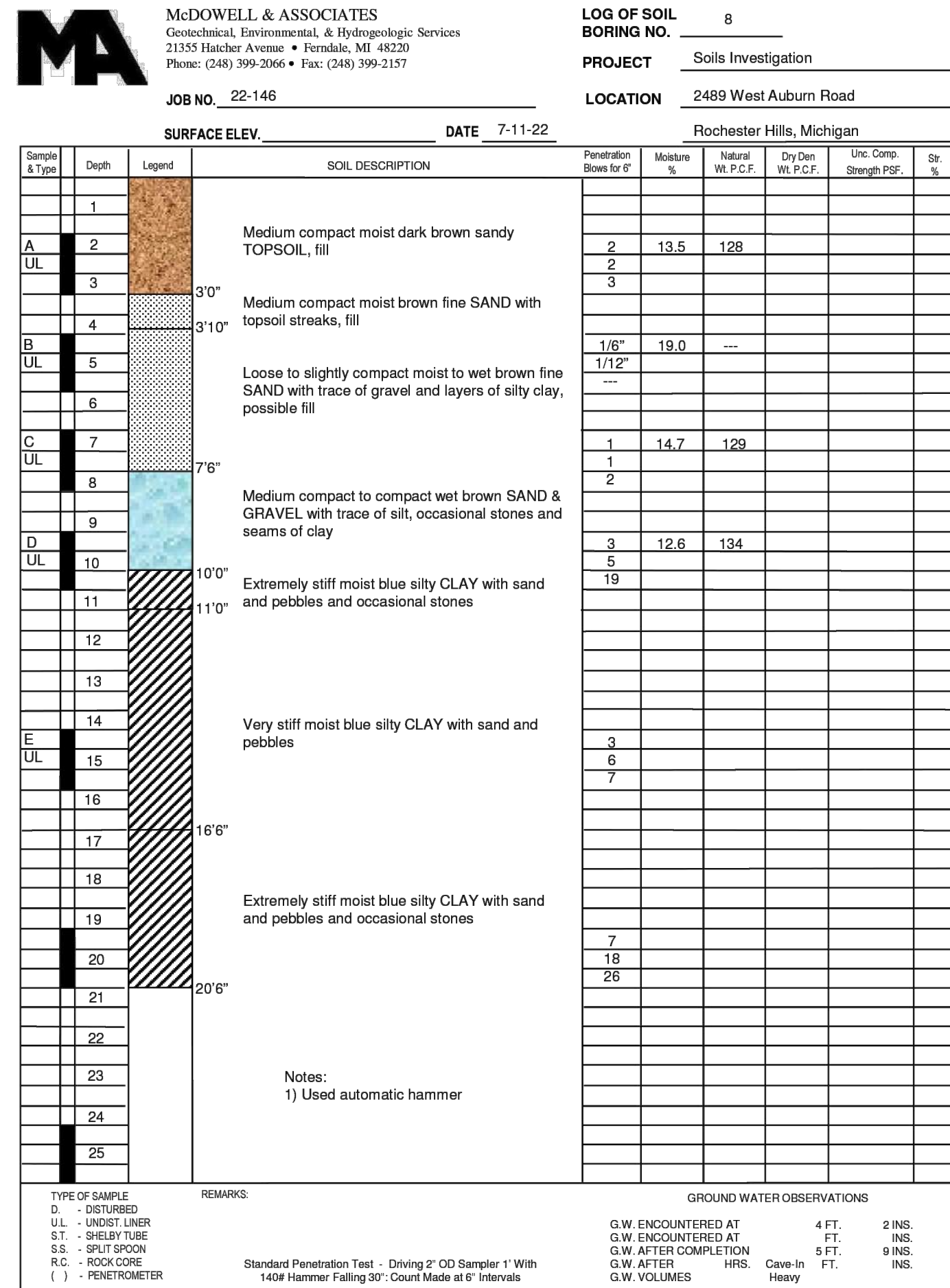
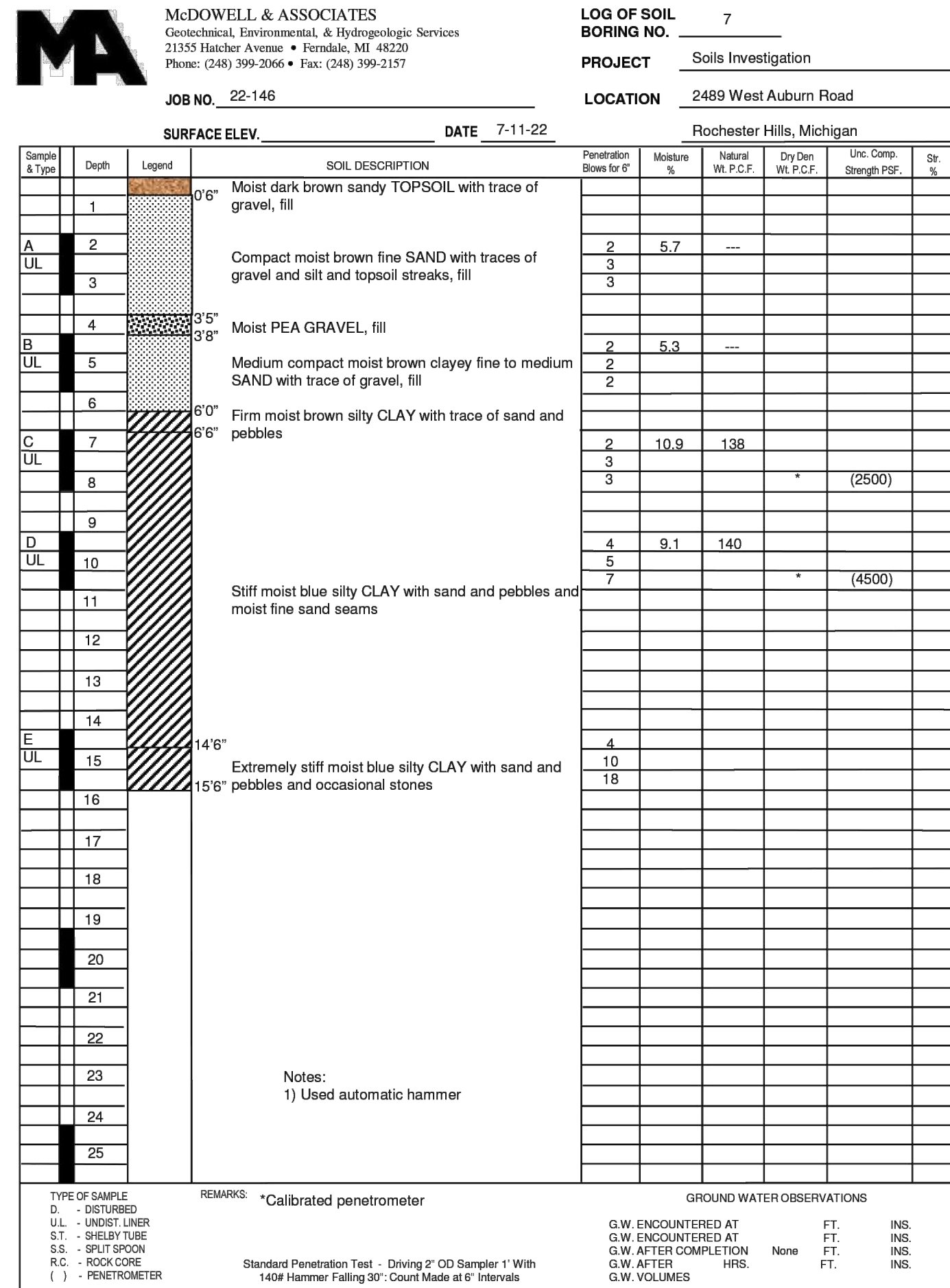
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CLIENT :  
**AUBURN ANGARA OAKS, LLC**  
14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**SOIL BORING LOGS**







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**LOG OF SOIL BORING NO. 13**  
PROJECT: Soils Investigation  
LOCATION: 2489 West Auburn Road, Rochester Hills, Michigan

JOB NO. 22-146 DATE 7-8-22

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration (Blows ft <sup>2</sup> )	Moisture %	Natural Wt. P.C.F.	Dry Wt. P.C.F.	Unc. Comp. Strength PSF	Str. %
1	0'0"		Moist dark brown sandy TOPSOIL, fill						
A	2	UL	Compact moist brown fine SAND with trace of silt	3	15.7	119			
3			Compact moist brown fine SAND with occasional moist clayey sand seams	6					
B	4	UL	Very compact wet brown silty fine SAND	8	17.8	125			
5			Very compact wet grey clayey fine SAND with trace of gravel	9					
6									
C	7	UL	Stiff moist blue silty CLAY with sand & pebbles	5	9.7	140			
8									
9									
D	10	UL	Very compact wet brown fine SAND with trace of silt	11					
11									
12									
13									
14									
E	15	UL	Very compact wet grey fine SAND with trace of silt and wet silt lenses (Head of water 15' drive)	4					
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
25'6"									

REMARKS:  
1) Used track rig

GROUND WATER OBSERVATIONS:  
G.W. ENCOUNTERED AT 4 FT. 9 INS. (808.3)  
G.W. ENCOUNTERED AT 8 FT. 3 INS.  
G.W. AFTER COMPLETION 1 FT. 3 INS.  
G.W. AFTER HRS. FT. INS.  
G.W. VOLUMES Heavy

**McDOWELL & ASSOCIATES**

**Cased Borehole Infiltration Test Log**

Soil Boring #: 2  
Infiltration Test #: 1  
Date: 7/9/2022  
Weather: Sunny  
Ground Elev.: N/A

Job Number: 22-146  
Project: Infiltration Study - 2489 West Auburn Road  
Location: Rochester Hills, Michigan

Soil Stratigraphy:	Pipe Installation #1
See Boring 2 for soil and groundwater conditions.	Soil Depth: 4'0"
	Inner Pipe Dia.: 3"
	Casing Length: 5'
	Embedment: 3"
Stick-up: 13"	
Pipe Installation #2	
Soil Depth: N/A	
Inner Pipe Dia.: N/A	
Casing Length: N/A	
Embedment: N/A	
Stick-up: N/A	
Soak Period (Pipe #1)	Soak Period (Pipe #2)
Start Date: 7/9/2022 Start Time: N/A Notes: Filled water to 1.97' below top of casing (TOC) Time: 30 min Water Drop: 0.26 feet Notes: Filled water to 2.12' below TOC Time: 30 min Water Drop: 0.19 feet Notes: Filled water to 2.04' below TOC	Start Date: N/A Start Time: N/A Notes: Filled water to 2.11' below top of casing (TOC) Time: 30 min Water Drop: 0.78 feet Notes: Filled water to 2.00' below TOC Time: 30 min Water Drop: 0.42 feet Notes: Filled water to 2.00' below TOC
Test Period (Pipe #1)	Test Period (Pipe #2)
Time: 30 min Water Drop: 0.16 feet Notes: Filled water to 2.01' below TOC Time: 30 min Water Drop: 0.15 feet Notes: Filled water to 2.0' below TOC Time: 30 min Water Drop: 0.14 feet Notes: Filled water to 2.0' below TOC Time: 30 min Water Drop: 0.14 feet Notes: Filled water to 2.0' below TOC Time: 30 min Water Drop: 0.14 feet Notes: Filled water to 2.0' below TOC	Time: 30 min Water Drop: 0.12 inches Notes: Filled water to 1.99' below TOC Time: 30 min Water Drop: 0.12 inches Notes: Filled water to 2.00' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.01' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.01' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.00' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.00' below TOC
Notes: Average of last 4 readings = 0.15 ft/30 min (3.6 in/hr)	Notes: N/A

**McDOWELL & ASSOCIATES**

**Cased Borehole Infiltration Test Log**

Soil Boring #: 11  
Infiltration Test #: 2  
Date: 7/9/2022  
Weather: Sunny  
Ground Elev.: N/A

Job Number: 22-146  
Project: Infiltration Study - 2489 West Auburn Road  
Location: Rochester Hills, Michigan

Soil Stratigraphy:	Pipe Installation #1
See Boring 11 for soil and groundwater conditions.	Soil Depth: 2'0"
	Inner Pipe Dia.: 3"
	Casing Length: 5'
	Embedment: 3"
Stick-up: 13"	
Pipe Installation #2	
Soil Depth: N/A	
Inner Pipe Dia.: N/A	
Casing Length: N/A	
Embedment: N/A	
Stick-up: N/A	
Soak Period (Pipe #1)	Soak Period (Pipe #2)
Start Date: 7/9/2022 Start Time: N/A Notes: Filled water to 2.11' below top of casing (TOC) Time: 30 min Water Drop: 0.78 feet Notes: Filled water to 2.00' below TOC Time: 30 min Water Drop: 0.42 feet Notes: Filled water to 2.00' below TOC	Start Date: N/A Start Time: N/A Notes: Filled water to 2.11' below top of casing (TOC) Time: 30 min Water Drop: 0.78 feet Notes: Filled water to 2.00' below TOC Time: 30 min Water Drop: 0.42 feet Notes: Filled water to 2.00' below TOC
Test Period (Pipe #1)	Test Period (Pipe #2)
Time: 10 min Water Drop: 0.12 feet Notes: Filled water to 1.99' below TOC Time: 10 min Water Drop: 0.12 feet Notes: Filled water to 2.00' below TOC Time: 10 min Water Drop: 0.11 feet Notes: Filled water to 2.01' below TOC Time: 10 min Water Drop: 0.11 feet Notes: Filled water to 2.01' below TOC Time: 10 min Water Drop: 0.11 feet Notes: Filled water to 2.00' below TOC Time: 10 min Water Drop: 0.11 feet Notes: Filled water to 2.00' below TOC	Time: 30 min Water Drop: 0.12 inches Notes: Filled water to 1.99' below TOC Time: 30 min Water Drop: 0.12 inches Notes: Filled water to 2.00' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.01' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.01' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.00' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.00' below TOC
Notes: Average of last 4 readings = 0.12 ft/10 min (8.6 in/hr)	Notes: N/A

**McDOWELL & ASSOCIATES**

**Cased Borehole Infiltration Test Log**

Soil Boring #: 13  
Infiltration Test #: 3  
Date: 7/9/2022  
Weather: Sunny  
Ground Elev.: N/A

Job Number: 22-146  
Project: Infiltration Study - 2489 West Auburn Road  
Location: Rochester Hills, Michigan

Soil Stratigraphy:	Pipe Installation #1
See Boring 13 for soil and groundwater conditions.	Soil Depth: 1'6"
	Inner Pipe Dia.: 3"
	Casing Length: 5'
	Embedment: 3"
Stick-up: 13"	
Pipe Installation #2	
Soil Depth: N/A	
Inner Pipe Dia.: N/A	
Casing Length: N/A	
Embedment: N/A	
Stick-up: N/A	
Soak Period (Pipe #1)	Soak Period (Pipe #2)
Start Date: 7/9/2022 Start Time: N/A Notes: Filled water to 2.02' below top of casing (TOC) Time: 12 min 42 sec Water Drop: 2.00 feet Notes: Filled water to 2.01' below TOC Time: 22 min 28 sec Water Drop: 2.00 feet Notes: Filled water to 2.00' below TOC	Start Date: N/A Start Time: N/A Notes: Filled water to 2.02' below top of casing (TOC) Time: 10 min Water Drop: 0.67 feet Notes: Filled water to 2.01' below TOC Time: 10 min Water Drop: 0.66 feet Notes: Filled water to 2.00' below TOC Time: 10 min Water Drop: 0.66 feet Notes: Filled water to 2.00' below TOC Time: 10 min Water Drop: 0.65 feet Notes: Filled water to 2.00' below TOC
Test Period (Pipe #1)	Test Period (Pipe #2)
Time: 10 min Water Drop: 0.70 feet Notes: Filled water to 2.02' below TOC Time: 10 min Water Drop: 0.67 feet Notes: Filled water to 2.01' below TOC Time: 10 min Water Drop: 0.66 feet Notes: Filled water to 2.00' below TOC Time: 10 min Water Drop: 0.66 feet Notes: Filled water to 2.00' below TOC Time: 10 min Water Drop: 0.65 feet Notes: Filled water to 2.00' below TOC	Time: 30 min Water Drop: 0.12 inches Notes: Filled water to 2.02' below TOC Time: 30 min Water Drop: 0.12 inches Notes: Filled water to 2.00' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.01' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.01' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.00' below TOC Time: 30 min Water Drop: 0.11 feet Notes: Filled water to 2.00' below TOC
Notes: Average of last 4 readings = 0.66 ft/10 min (47.5 in/hr)	Notes: N/A

**McDOWELL & ASSOCIATES**

**LOG OF SOIL BORING NO. A**  
PROJECT: Soils Investigation  
LOCATION: 2489 West Auburn Road, Rochester Hills, Michigan

JOB NO. 22-146 DATE 3/19/2025

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration (Blows ft <sup>2</sup> )	Moisture %	Natural Wt. P.C.F.	Dry Wt. P.C.F.	Unc. Comp. Strength PSF	Str. %
1	0'0"		Moist dark brown sandy TOPSOIL, fill						
A	2	UL	Moist brown silty fine SAND, fill	1	22.2	118			
3			Soft moist brown and discolored silty CLAY with traces of sand, topsoil and occasional wet sand lenses	2					
4									
B	4	UL	Compact wet brown silty fine to coarse SAND with traces of silt and gravel	3	14.5	---			
5									
6									
C	7	UL	Firm moist blue silty CLAY	4					
8									
9									
D	10	UL	Compact wet brown fine to medium SAND with trace of silt	2	18.7	133			
11									
12									
13									
14									
E	15	UL	Stiff moist blue silty CLAY with trace of sand	3	11.7	138		(4500)	
16									
17									
18									
19									
F	20	UL	Medium compact wet brown fine SAND with trace of silt	3	18.0	---			
21									
22									
23									
24									
25									

REMARKS:  
Used track rig

GROUND WATER OBSERVATIONS:  
G.W. ENCOUNTERED AT 2 FT. 9 INS.  
G.W. ENCOUNTERED AT 8 FT. 7 INS.  
G.W. AFTER COMPLETION 3 FT. 3 INS.  
G.W. AFTER HRS. FT. INS.  
G.W. VOLUMES Heavy

**McDOWELL & ASSOCIATES**

**LOG OF SOIL BORING NO. B**  
PROJECT: Soils Investigation  
LOCATION: 2489 West Auburn Road, Rochester Hills, Michigan

JOB NO. 22-146 DATE 3/19/2025

Sample & Type	Depth	Legend	SOIL DESCRIPTION	Penetration (Blows ft <sup>2</sup> )	Moisture %	Natural Wt. P.C.F.	Dry Wt. P.C.F.	Unc. Comp. Strength PSF	Str. %
1	0'0"		Slightly compact moist dark brown sandy TOPSOIL with traces of gravel stone, carpet, plastic and wood, fill	1	41.8	98			
A	2	UL	Soft moist dark brown silty CLAY with traces of sand and pieces of wood, fill	2					
3									
4									
B	4	UL	Medium compact wet brown silty fine to coarse SAND with trace of silt	2	21.5	116			
5									
6									
C	7	UL	Very compact wet brown fine to medium SAND with traces of silt and gravel	5	16.0	---			
8									
9									
D	9	UL	Very stiff moist brown silty CLAY	2	18.9	---	(7000)		
10									
11									
12									
13									
14									
E	15	UL	Very compact wet brown silty fine SAND	9					
16									
17									
18									
19									
F	20	UL	Extremely compact wet brown silty fine to medium SAND with occasional trace of gravel	2					
21									
22									
23									
24									
25									

REMARKS:  
Used track rig

GROUND WATER OBSERVATIONS:  
G.W. ENCOUNTERED AT 5 FT. 1 INS.  
G.W. ENCOUNTERED AT 10 FT. 2 INS.  
G.W. AFTER COMPLETION 1 FT. 8 INS.  
G.W. AFTER HRS. FT. INS.  
G.W. VOLUMES Heavy

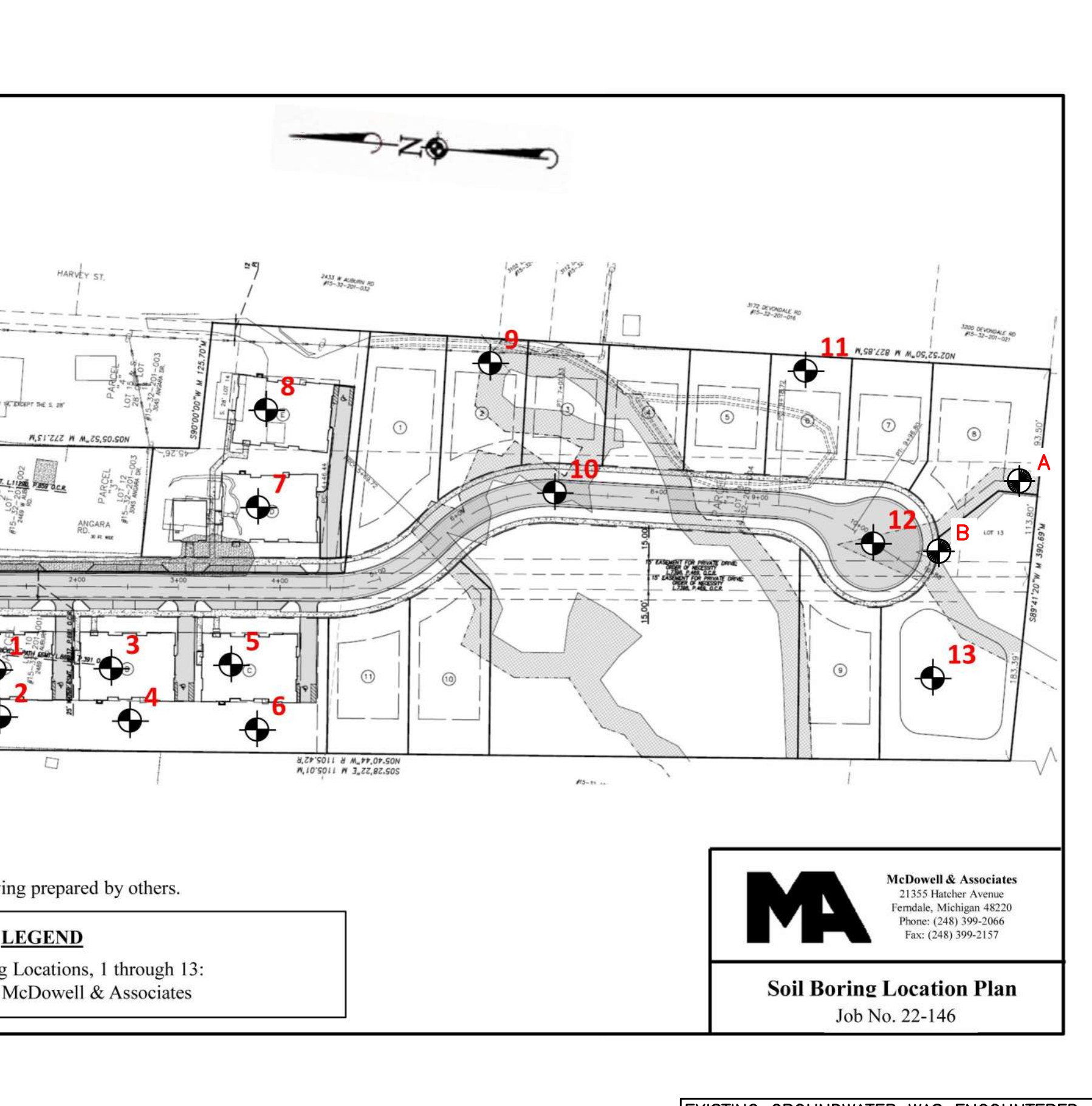
**McDOWELL & ASSOCIATES**

**SIEVE ANALYSIS**

Boring	Sample	% Passing #4 Sieve	% Passing #10 Sieve	% Passing #40 Sieve	% Passing #100 Sieve	% Passing #200 Sieve
1	C	100.0	100.0	92.1	10.6	5.6
2	D	100.0	100.0	99.7	82.9	46.3
3	D	86.7	64.6	32.5	16.7	12.5
6	D	100.0	99.8	97.8	32.1	12.1
8	C	70.4	58.2	35.7	14.6	10.6
9	C	97.3	93.7	83.3	46.5	31.9
10	B	99.7	97.4	78.8	15.1	9.3
11	B	97.6	93.0	64.9	12.5	6.0
12	C	58.9	47.8	26.1	10.8	6.1
13	B	100.0	100.0	98.3	43.7	14.7

**SIEVE ANALYSIS**

Boring	Sample	% Passing #4 Sieve	% Passing #10 Sieve	% Passing #40 Sieve	% Passing #100 Sieve	% Passing #200 Sieve
A	D	9.8	97.2	77.25	9.5	2.0
F	F	100.0	100.0	97.8	17.3	4.7
B	C	95.0	89.4	45.2	7.8	4.6



EXISTING GROUNDWATER WAS ENCOUNTERED IN BORINGS 12 AND 13 (VICINITY OF STORM WATER POND) AT ROUGHLY THE SAME ELEVATION. BASED ON THE INDICATIONS FROM THESE TWO BORINGS, IT IS ESTIMATED THAT THE STATIC WATER LEVEL DEPTHS ARE 4'-6" (808.1) IN BORING 12 AND 4'-0" (808.3) IN BORING 13.

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ENGINEER  
NO. 6201043260

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THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT :  
**AUBURN ANGARA OAKS, LLC**  
14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**SOIL BORING LOGS**  
AUBURN ANGARA OAKS  
PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

DATE	REVISIONS
09/04/2024	REVISED PRELIMINARY SITE PLAN TO CITY
11/20/2024	CONSTRUCTION PLAN SUBMITTAL
12/19/2024	ADDED WETLAND CONSENSUS
04/02/2025	CONSTRUCTION PLAN RESUBMITTAL #1
05/29/2025	CONSTRUCTION PLAN RESUBMITTAL #2
07/07/2025	WATER AND SANITARY PERMIT PLANS
08/20/2025	CONSTRUCTION PLAN RESUBMITTAL #4

ORIGINAL ISSUE DATE: 05/19/2022

PROJECT NO: 22-051

SCALE: N/A

FIELD: REICHT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

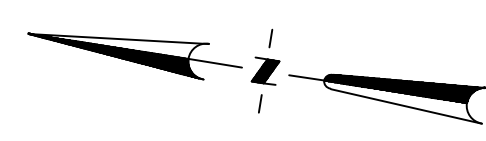
**V-2.2**

NOT FOR CONSTRUCTION

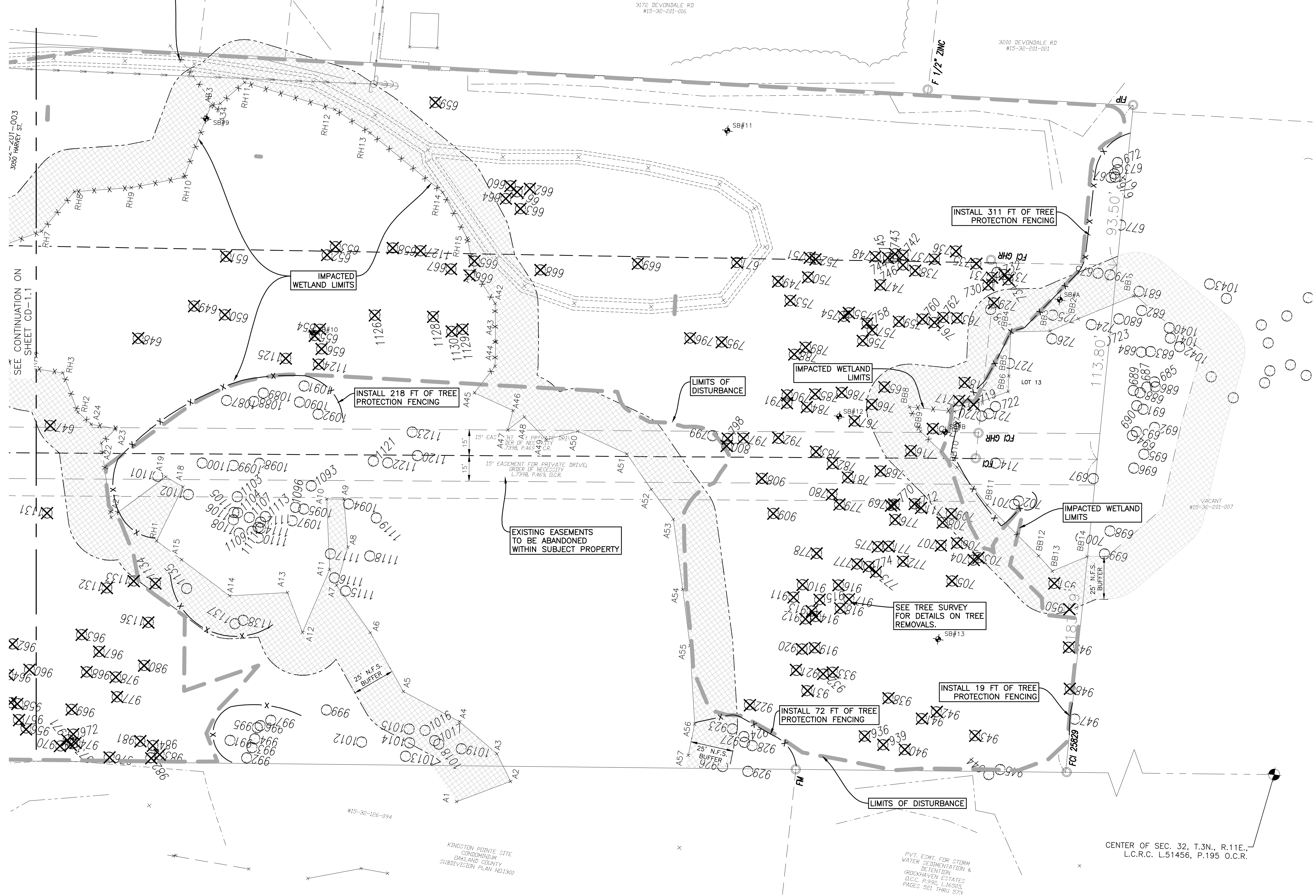








REMOVE 48 FT 12" CULVERT. ENSURE POSITIVE DRAINAGE FROM ADJACENT PROPERTY PRIOR TO REMOVAL OF CULVERT.



**DEMOLITION LEGEND**

- ..... ABANDON IN PLACE
- ////// ABANDON LINEAR FEATURE
- ////// SAWCUT
- X X X X X X X X REMOVE LINEAR FEATURE
- --- --- --- --- --- LIMITS OF DISTURBANCE
- X REMOVE OBJECT
- WETLAND IMPACT
- X X X X TREE PROTECTION FENCE

**DEMOLITION NOTES**

1. UTILITY OBJECTS SUCH AS GAS METER, TRANSFORMER, TELEPHONE PEDESTAL, UTILITY POLE & WIRES ARE TO BE REMOVED BY OTHERS IF APPLICABLE.
2. SEE SHEET LS-1 FOR TREE REMOVALS. ANY TREES NOT MARKED PER PLAN ARE TO BE PROTECTED & PRESERVED DURING CONSTRUCTION.
3. WETLAND AREAS THAT ARE NOT SHOWN TO BE IMPACTED ARE TO BE PROTECTED FROM ANY DAMAGE. INSTALL SILT FENCE PRIOR TO ANY OTHER WORK ADJACENT TO THE WETLAND.
4. REMOVAL LIMITS SHOWN FOR UNDERGROUND CONSTRUCTION ARE APPROXIMATE ONLY. CONTRACTOR TO DETERMINE REMOVALS NEEDED FOR SAFE EXCAVATION PRACTICES AND TO COMPLY WITH APPLICABLE SAFETY STANDARDS.
5. SEE SHEET C-2.3 FOR WETLAND IMPACTS.

**LEGEND:**

- FOUND IRON
- SET IRON
- R RECORD DISTANCE
- M MEASURED DISTANCE
- EXISTING GRAVEL
- EXISTING PAVER STONE
- EXISTING BUILDING
- EXISTING CONCRETE
- EXISTING ASPHALT
- EXISTING LANDSCAPED AREA
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING OVERHEAD WIRES
- EXISTING FENCE
- EXISTING UTILITY POLE
- EXISTING WATER SHUT OFF
- EXISTING GATE VALVE
- EXISTING HYDRANT
- EXISTING WELL
- EXISTING GAS SHUT OFF
- EXISTING SANITARY STRUCTURE
- EXISTING STORM STRUCTURE
- EXISTING DOWN SPOUT
- EXISTING UTILITY PEDESTAL
- EXISTING BOULDER RET. WALL
- EXISTING GRADE
- PROPOSED GRADE
- PROPOSED CONCRETE
- PROPOSED BUILDING
- PROPOSED SILT FENCE
- PROP. DRAINAGE ARROW
- PROP. MAJOR CONTOURS
- PROP. MINOR CONTOURS

NOTE: WETLAND A DRAINS TO WETLAND B, WHICH IS HYDRAULICALLY CONNECTED TO A LARGER WETLAND COMPLEX THAT EXTENDS OFF SITE TO THE SOUTH.  
SEE SHEET C-2.2 (WETLAND PLAN) FOR DETAILS OF DISTURBANCE TO WETLANDS AND NATURAL FEATURE SETBACKS.

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**AUBURN ANGARA OAKS, LLC**

14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**DEMOLITION PLAN - SOUTH**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/29/2024
ADDED WETLAND CONTS. EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #1	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #2	05/29/2025
WATER AND SANITARY PERMIT PLANS	07/07/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/01/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/29/2025

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

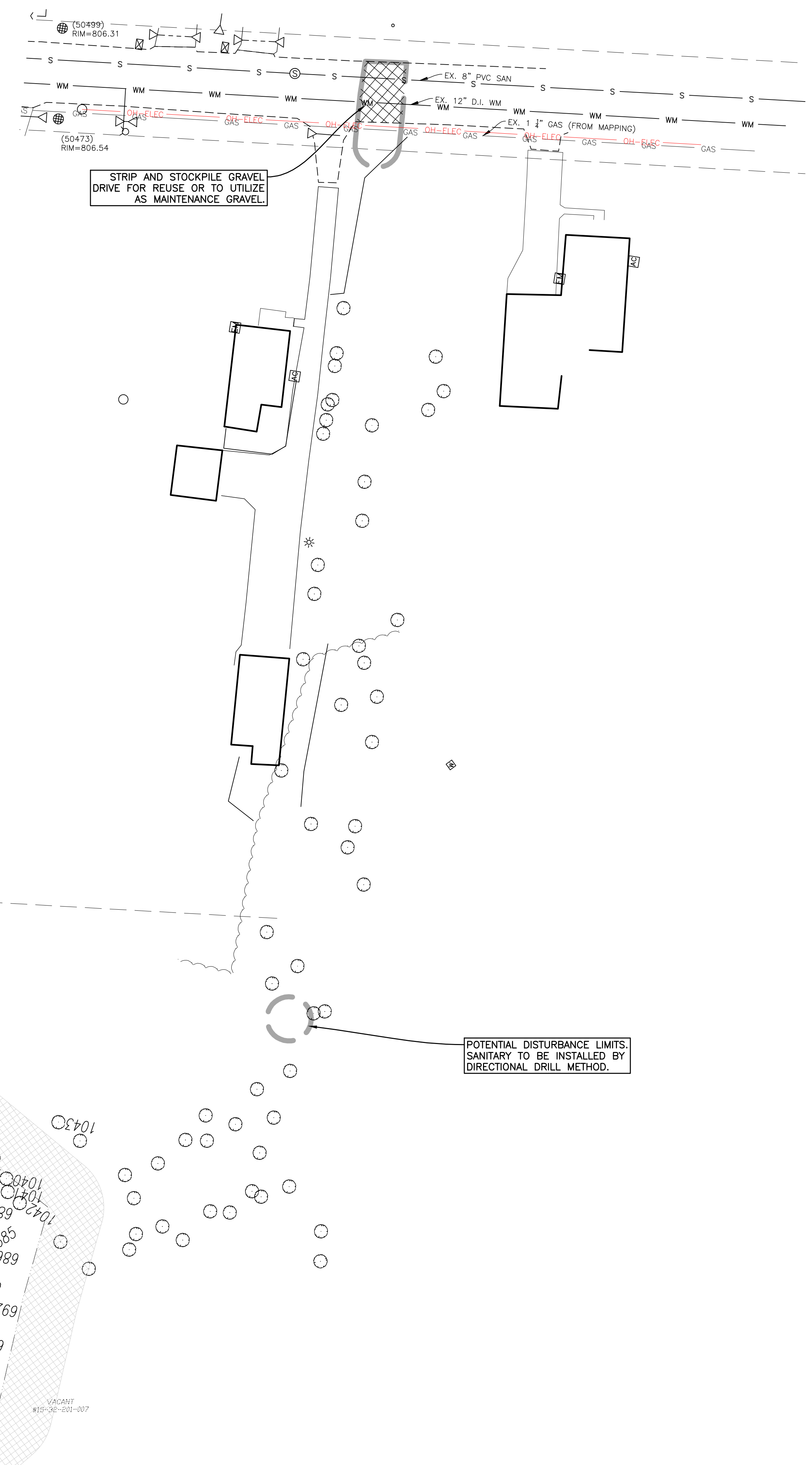
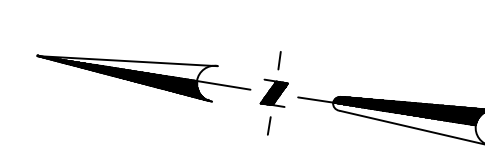
SCALE: 1" = 30'

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: AP  
CHECK BY: AP

**CD-12**

NOT FOR CONSTRUCTION





### DEMOLITION LEGEND

- ABANDON IN PLACE
- ////// ABANDON LINEAR FEATURE
- ////// SAWCUT
- X-X-X-X-X-X-X- REMOVE LINEAR FEATURE
- LIMITS OF DISTURBANCE
- X REMOVE OBJECT
- REMOVE PAVEMENT
- X-X-X TREE PROTECTION FENCE

- ### DEMOLITION NOTES
- UTILITY OBJECTS SUCH AS GAS METER, TRANSFORMER, TELEPHONE PEDESTAL, UTILITY POLE & WIRES ARE TO BE REMOVED BY OTHERS IF APPLICABLE.
  - SEE SHEET LS-1 FOR TREE REMOVALS. ANY TREES NOT MARKED PER PLAN ARE TO BE PROTECTED & PRESERVED DURING CONSTRUCTION.
  - REMOVAL LIMITS SHOWN FOR UNDERGROUND CONSTRUCTION ARE APPROXIMATE ONLY. CONTRACTOR TO DETERMINE REMOVALS NEEDED FOR SAFE EXCAVATION PRACTICES AND TO COMPLY WITH APPLICABLE SAFETY STANDARDS.

### LEGEND:

- FOUND IRON
- SET IRON
- R RECORD DISTANCE
- M MEASURED DISTANCE
- EXISTING GRAVEL
- EXISTING PAVER STONE
- EXISTING BUILDING
- EXISTING CONCRETE
- EXISTING ASPHALT
- EXISTING LANDSCAPED AREA
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING OVERHEAD WIRES
- EXISTING FENCE
- EXISTING UTILITY POLE
- EXISTING WATER SHUT OFF
- EXISTING GATE VALVE
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- PROPOSED GRADE
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- PROP. MAJOR CONTOURS
- PROP. MINOR CONTOURS

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SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**DEMOLITION PLAN - OFFSITE**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/20/2024
ADDED WETLAND CONTS. EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #1	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #2	05/29/2025
CONSTRUCTION PLAN RESUBMITTAL #3	07/07/2025
WATER AND SANITARY PERMIT PLANS	08/01/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/29/2025

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

SCALE: 1" = 30'

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

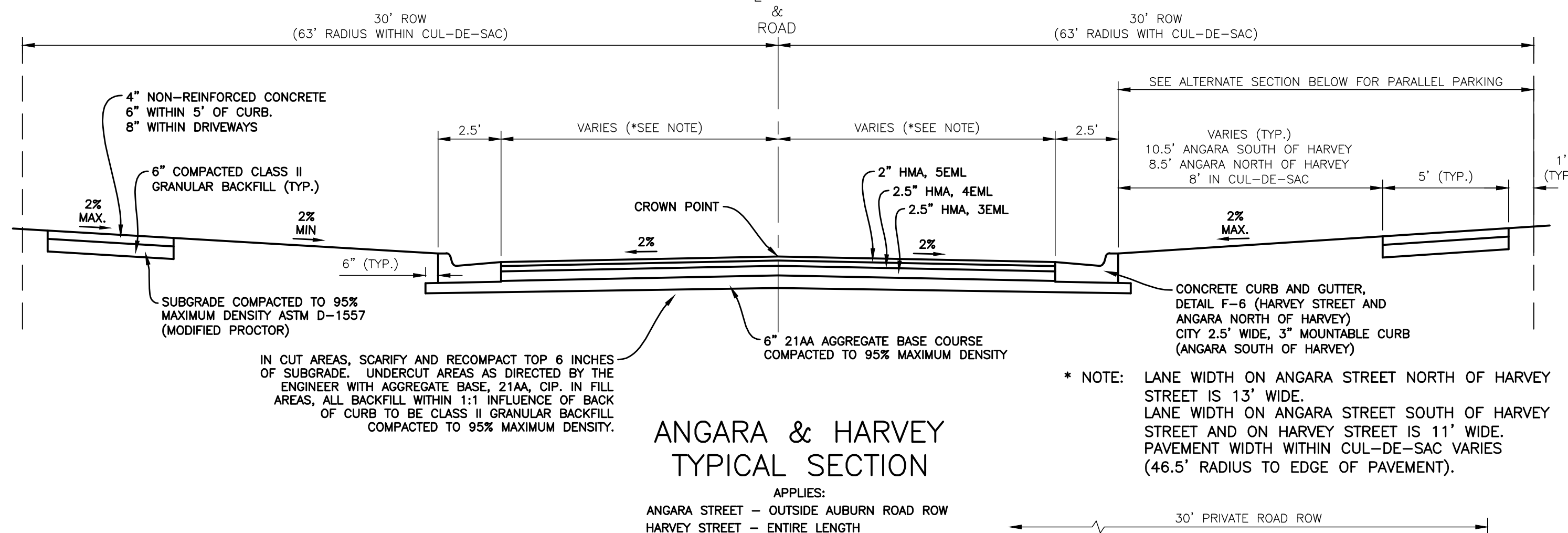
**CD-13**

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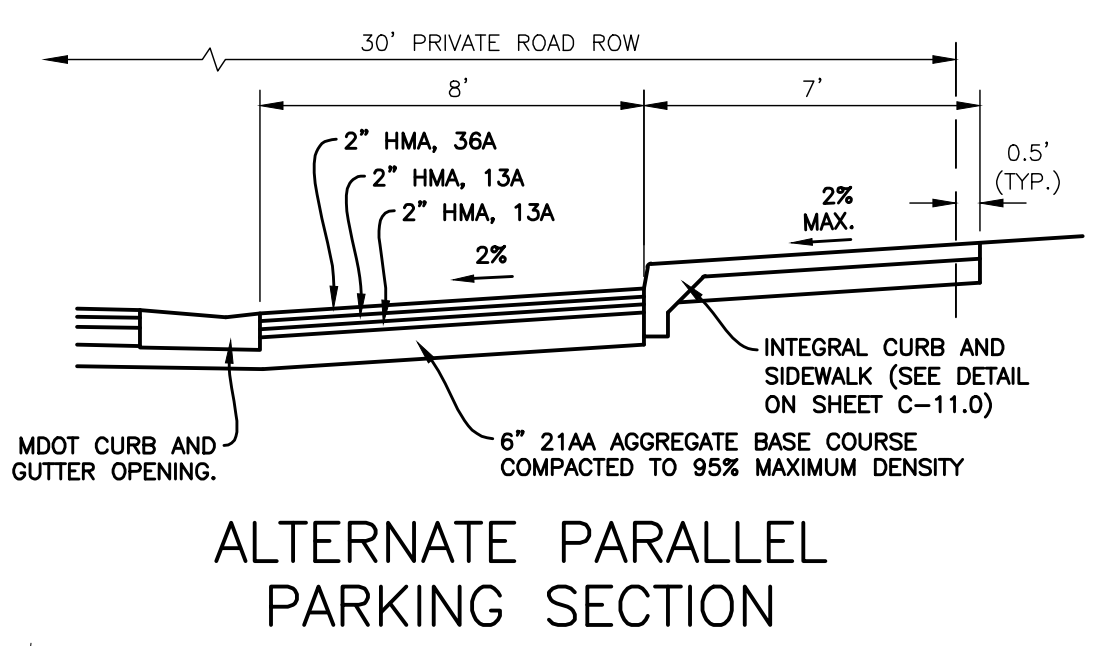
**NOTES**

- MULTIFAMILY BUILDINGS HAVE INTERNAL TRASH HANDLING. SINGLE FAMILY UNITS HAVE RESIDENTIAL CURB SIDE ROLL-OFF CONTAINERS STORED IN THE GARAGES. FARM STAND TO HAVE CURB SIDE ROLL-OFF CONTAINER STORED IN THE BUILDING.
- SCREENING SHALL BE PROVIDED FOR ALL MECHANICAL EQUIPMENT.
- ALL AREAS NOT PAVED SHALL BE FINISHED IN GRASS OR OTHER PERMEABLE SURFACE.
- MULTIFAMILY BUILDINGS WILL BE FIRE SUPPRESSED.
- SEE LS SHEETS FOR DETAILS RELATED TO THE PLAZA.
- SEE REMOVAL PLANS AND WETLAND PLAN FOR WETLAND IMPACT NOTES.
- ALL GROUND MOUNTED MECHANICAL EQUIPMENT SHALL BE SCREENED FROM VIEW. SEE LS SHEETS.
- STREETS WITHIN (AND ADJACENT TO) THE FB OVERLAY ZONING HAVE THE FOLLOWING CLASSIFICATIONS:
  - AUBURN ROAD - ARTERIAL (MDOT ROW)
  - ANGARA DRIVE - MAIN STREET (PRIVATE ROAD)
  - HARVEY STREET - MINOR STREET (PRIVATE ROAD)
- ENTIRE DEVELOPMENT IS TO BE GOVERNED BY ONE HOMEOWNERS ASSOCIATION. ALL COMMON AND YARD AREAS (INCLUDING SINGLE FAMILY) ARE TO BE MAINTAINED BY THE ASSOCIATION.
- ALL SIGNS MUST MEET THE REQUIREMENTS OF THE CITY AND BE APPROVED UNDER SEPARATE PERMITS ISSUED BY THE BUILDING DEPARTMENT.
- PRIVATE ROAD EASEMENTS FOR HARVEY STREET AND ANGARA DRIVE WILL ALSO INCLUDE BLANKET CROSS ACCESS EASEMENTS TO ADJACENT PROPERTIES.
- SIDEWALKS ADJACENT TO COMMON ELEMENTS AND OPEN SPACES IN THE DEVELOPMENT ARE TO BE CONSTRUCTED PRIOR TO SINGLE FAMILY HOME CONSTRUCTION.
- A CONSERVATION EASEMENT WILL BE PROVIDED FOR NATURAL FEATURES SETBACKS ON SINGLE FAMILY UNITS. SIGNING WILL BE PROVIDED AT 25' SPACING ALONG THE BUFFER LIMITS IDENTIFYING THE BUFFER AND RESTRICTING MOWING, PESTICIDE AND FERTILIZER USE WITHIN IT.
- SEE SHEET C-10.0 FOR MDOT TYPICAL PAVING SECTION.



**HMA APPLICATION TABLE**

ID NO.	ITEM	THICKNESS	RATE PER SYD	PERFORMANCE GRADE	COMMENTS
5EML	HMA, 5EML	2 INCHES	220 LBS	64-22	AWI 220
4EML	HMA, 4EML	2.5 INCHES	275 LBS	64-22	
3EML	HMA, 3EML	4.5 INCHES	495 LBS	58-22	
	BOND COAT	0.05 TO 0.15 GALLONS			SS-1h (FOR INFORMATION ONLY)



**RIGHT OF WAY LINE LEGEND**

EX. RIGHT OF WAY LINE/EASEMENT  
PR. RIGHT OF WAY LINE/EASEMENT

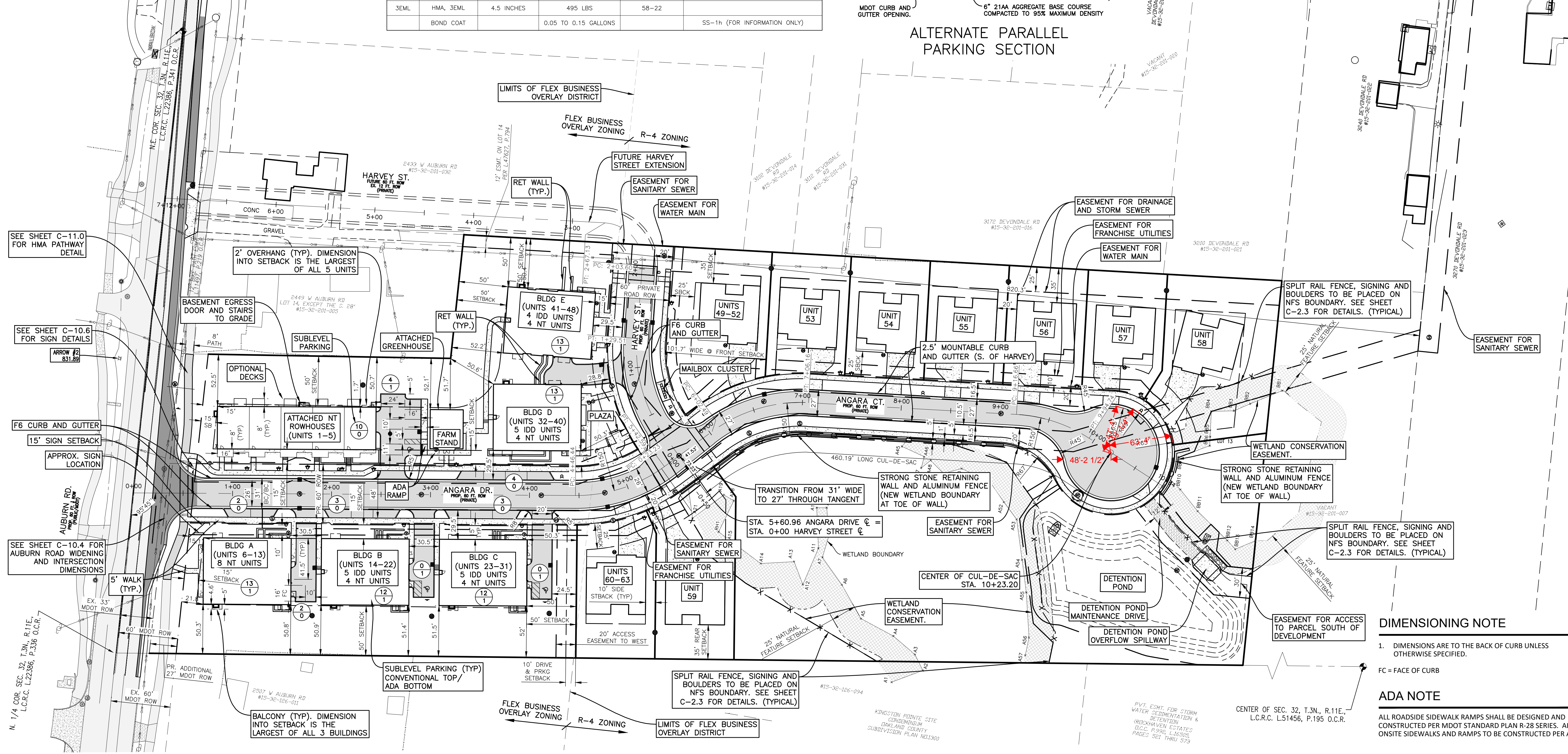
**STANDARD DUTY PAVEMENT SECTION**

Applies to: DRIVEWAYS AND PARKING AREAS

- 2" MDOT HMA, 36A
- 2" MDOT HMA, 13A
- 2" MDOT HMA, 13A, SECOND LIFT (IN APPROACH SECTION ONLY)
- 8" MDOT 21AA CRUSHED AGG. BASE COURSE COMPACTED TO 95% MAX. DENSITY (ASTM D-1557)
- SUBGRADE COMPACTED TO 95% MAXIMUM DENSITY ASTM D-1557 (MODIFIED PROCTOR)

**PAVEMENT LEGEND**

- EX. ASPHALT
- EX. CONCRETE
- EX. GRAVEL
- PR. PRIVATE ROAD HMA PAVING
- PR. MDOT HMA PAVING
- PR. CONCRETE
- PR. GRAVEL
- STANDARD CURB AND GUTTER
- ADA WARNING DEVICE
- REGULAR PARKING SPACES
- BARRIER FREE PARKING SPACES



**DIMENSIONING NOTE**

1. DIMENSIONS ARE TO THE BACK OF CURB UNLESS OTHERWISE SPECIFIED.

FC = FACE OF CURB

**ADA NOTE**

ALL ROADSIDE SIDEWALK RAMPS SHALL BE DESIGNED AND CONSTRUCTED PER MDOT STANDARD PLAN R-28 SERIES. ALL ONSITE SIDEWALKS AND RAMPS TO BE CONSTRUCTED PER ADA.

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SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**SITE PLAN - OVERVIEW**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

DATE	DESCRIPTION
09/04/2024	REVISED PRELIMINARY SITE PLAN TO CITY
11/25/2024	CONSTRUCTION PLAN SUBMITTAL
12/19/2024	ADDED WETLAND CONSERVATION EASEMENT
04/02/2025	CONSTRUCTION PLAN RESUBMITTAL #2
05/29/2025	CONSTRUCTION PLAN RESUBMITTAL #3
07/07/2025	WATER AND SANITARY PERMIT PLANS
08/01/2025	CONSTRUCTION PLAN RESUBMITTAL #4

ORIGINAL ISSUE DATE: 05/19/2022

PROJECT NO: 22-051

SCALE: 1" = 50'

0 1/2" 1"

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**C-10**

NOT FOR CONSTRUCTION





### ZONING INFORMATION

THIS ZONING INFORMATION IS TAKEN FROM ROCHESTER HILLS ZONING ORDINANCE DATED: 02/14/2024 (INCL FB OVERLAY ORDINANCE)

Table with columns: SUBJECT PARCEL ZONING, SUBJECT PARCEL (AREA, WIDTH, BLDG AREA, BLDG D.E AREA), PROPOSED BUILDING, MAXIMUM HEIGHT OF BUILDING, BUILDING SETBACKS (FRONT, SIDE, SIDE PERIMETER, REAR), PARKING SETBACKS (FRONT FACADE, SIDE, REAR).

- 1. SETBACK LISTED FOR 2 STORY BUILDINGS UNDER 30 FEET TALL.
2. SETBACK FROM RESIDENTIAL ZONING DISTRICTS ONLY.

Table with columns: SUBJECT PARCEL ZONING, SUBJECT PARCEL (AREA, WIDTH, IN STORIES, IN FEET), MAXIMUM HEIGHT OF BUILDING, BUILDING SETBACKS (FRONT, SIDE, SIDE TOTAL, REAR), MAXIMUM % LOT AREA COVERED BY ALL BUILDINGS, MINIMUM FLOOR AREA (SF).

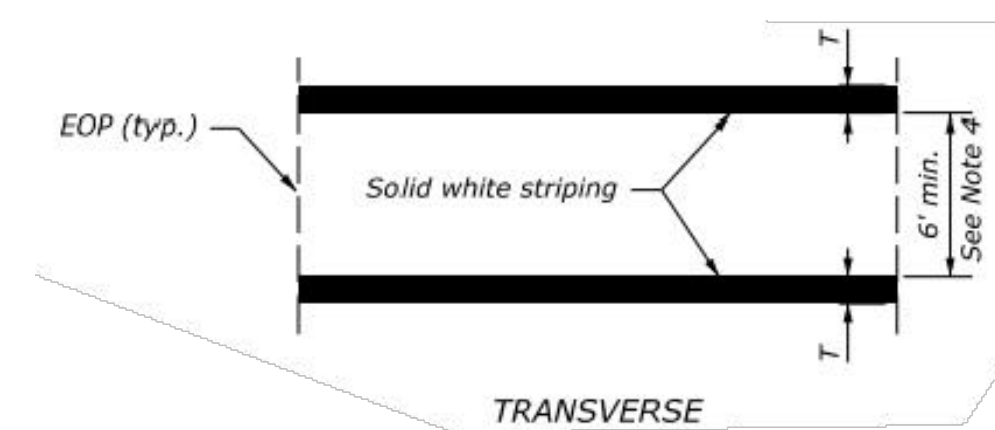
### ADJACENT ZONING

NORTH: R-4 ONE-FAMILY RESIDENTIAL
EAST: R-4 ONE-FAMILY RESIDENTIAL
WEST: R-4 ONE-FAMILY RESIDENTIAL

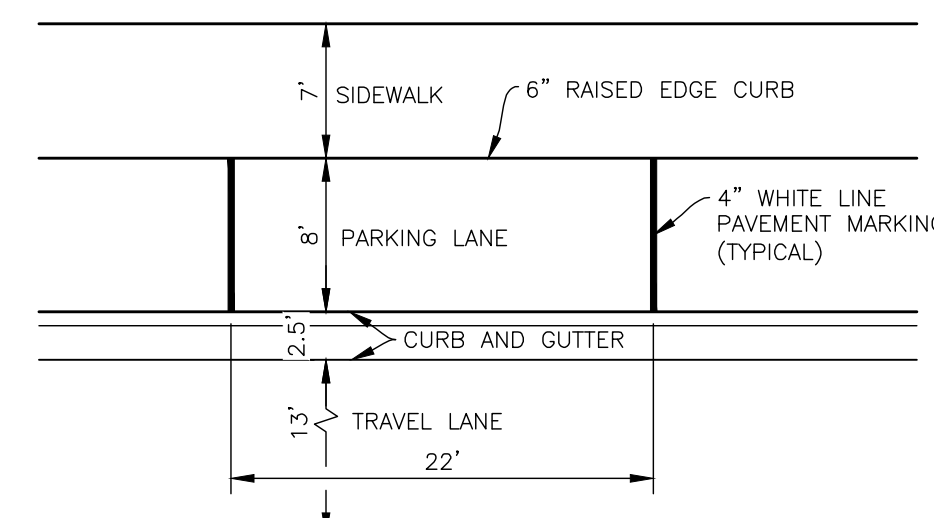
### STRIPING DETAILS

CROSSWALK STRIPING DIMENSIONS TABLE with columns: CROSSWALK TYPE, W1, W2, T, d and sub-columns for Min, Max.

\* Ensure lateral spacing W2 does not exceed 2.5 times the width of longitudinal bars.



CROSSWALK STRIPING



PARALLEL PARKING

### PROPOSED USE

#### MULTIFAMILY

SEE UNIT COUNT TABLE FOR DISTRIBUTION OF NEUROTYPICAL (NT) AND INTELLECTUALLY AND DEVELOPMENTALLY DISABLED (IDD) UNITS.

ATTACHED ROWHOUSES (UNITS 1-5): CONDOS AGE TARGETED FOR ACTIVE ADULTS (AGE 45-74) (NT)

#### SINGLE FAMILY

RANCH TOWNHOMES: 7 SINGLE FAMILY HOMES (UNITS 53-59 ARE CONDOS AGE TARGETED TO ACTIVE ADULTS (AGE 45-75) (NT)
2 SINGLE FAMILY HOMES (UNITS 49 - 52 AND 60 - 63) ARE CONDOS WITH SUITES FOR IDD

#### PLACES OF INTEREST

1,329 SQ FT (GFA) COMMUNITY GARDEN / GREENHOUSE (NO SALES)

PLAZA W/ LANDSCAPE GARDENS AND BENCHES

SEE LANDSCAPE PLANS FOR MORE INFORMATION ON PLACES OF INTEREST

### PROPOSED PARKING

REQUIRED PARKING
NON-RESIDENTIAL (FARMSTAND): 1.0 PARKING SPACE PER 400 SFT
FARMSTAND = 1329 SFT / 400 = 5 SPACES

MULTIFAMILY (SEE TABLE TO RIGHT FOR REQUIREMENTS)
APARTMENTS/ROWHOUSES = 74 SPACES

MINIMUM REQUIRED PARKING = 79 SPACES MINIMUM

MINIMUM REQUIRED FOR VISITORS = 0.5 PER MULTIFAMILY NT UNIT = 12 SPACES (INCLUDED IN ABOVE)

MAXIMUM PARKING = 1.25 X MIN PARKING = 99 SPACES MAXIMUM

#### PARKING PROVIDED:

RESIDENT PARKING (INSIDE BUILDINGS)
PARKING ON MULTIFAMILY SUBLEVELS = 73 STANDARD SPACES
5 BARRIER FREE SPACES

RESIDENT/VISITOR PARKING SPACES (OUTSIDE BUILDINGS)
BARRIER FREE PARKING = 3 SPACES
STANDARD SPACES IN BUILDING A DRIVE = 2 SPACES
STANDARD SPACES IN LOT AT ROWHOUSES = 4 SPACES
PARALLEL PARKING ON STREET = 12 SPACES

TOTAL PARKING PROVIDED = 91 STANDARD SPACES
8 BARRIER FREE (ALL VAN ACCESSIBLE)
91 REGULAR SPACES
8 BARRIER FREE SPACES

NOTE: SINGLE FAMILY DETACHED HOMES EACH HAVE 2 CAR GARAGES AND SPACE FOR 2+ VEHICLES IN DRIVEWAY.

### UNIT COUNT / TYPE / PARKING

Table with columns: BLDG/UNIT #, UNIT TYPE, BLDG, PARKING (IDD - .8 SPACES PER UNIT, NT - 1.5 PER UNIT + .5 VISITOR, REQUIRED SPACES). Lists units Bldg A-6 through Bldg E-48.

Table with columns: UNIT #, UNIT TYPE, GRADE, FLOOR PLAN, LOT WIDTH (FT), LOT DEPTH (FT), LOT AREA (SFT). Lists units Unit 49-52 through Unit 60-63.

UNIT TYPES
NT = NEURO-TYPICAL
IDD = INTELLECTUALLY/DEVELOPMENTALLY DISABLED

### TRIP GENERATION - ITE 10TH EDITION

#### ITE (10TH EDITION) TRIP GENERATION

Project No.: 21-051
Project Name: Angara Drive Senior Living Development
Date: 1/12/2024
Calculated by: Kevin C. McDevitt, P.E.

#### Single Family

Table with columns: Land Use, ITE Code, Amount, Units, ITE 10th Edition - Per Unit, Average Daily Traffic, AM Peak Hour, PM Peak Hour.

#### Multi Family - Intellectually/Developmentally Disabled

Table with columns: Land Use, ITE Code, Amount, Units, ITE 10th Edition - Per Unit, Average Daily Traffic, AM Peak Hour, PM Peak Hour.

#### Multi Family - Neotraditional

Table with columns: Land Use, ITE Code, Amount, Units, ITE 10th Edition - Per Unit, Average Daily Traffic, AM Peak Hour, PM Peak Hour.

#### Farm Stand - ITE 10th Ed. did not provide ADT Numbers - Assuming closed mid-day, open morning and afternoon so just added a.m. and p.m. peaks for ADT

Table with columns: Land Use, ITE Code, Amount, Units, ITE 10th Edition - Per Unit, Average Daily Traffic, AM Peak Hour, PM Peak Hour.

#### Total Development - Angara Drive Mixed Use Residential

Table with columns: Land Use, ITE Code, Amount, Units, Average Daily Traffic, AM Peak Hour, PM Peak Hour.

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#### CLIENT :

AUBURN ANGARA OAKS, LLC
14496 N SHELDON RD
SUITE 230
PLYMOUTH, MI 48170
BRUCE MICHAEL
(248) 703-4653

### SITE PLAN - BUILDING DATA

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

Table with columns: DATE, PLAN SUBMITTALS/REVISIONS, REVISIONS, PLAN TO CITY, CITY.

ORIGINAL ISSUE DATE: 05/19/2022

PROJECT NO: 22-051

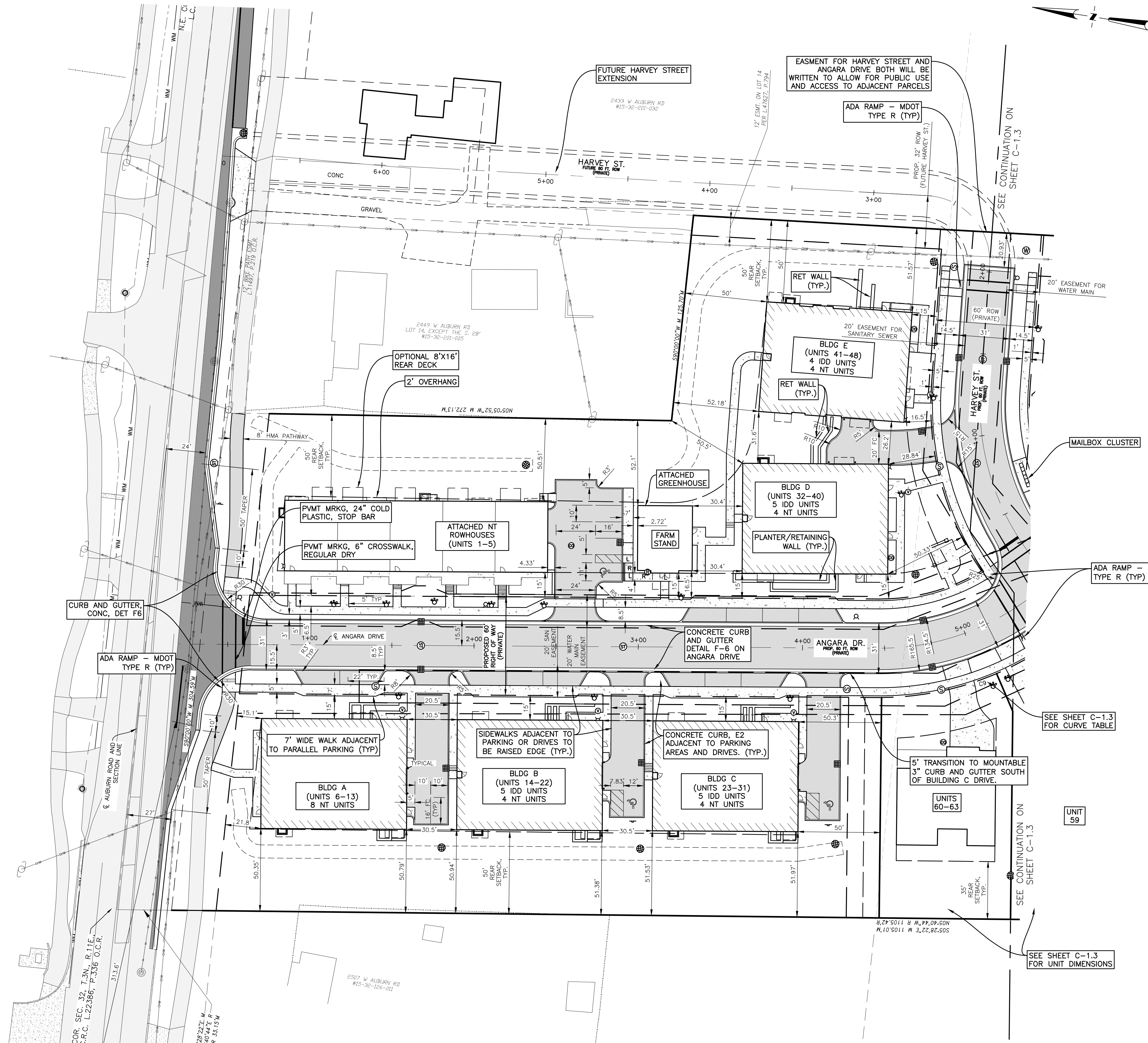
SCALE: 1" = 50'

FIELD: REICHERT
DRAWN BY: MN
DESIGN BY: KM
CHECK BY: AP

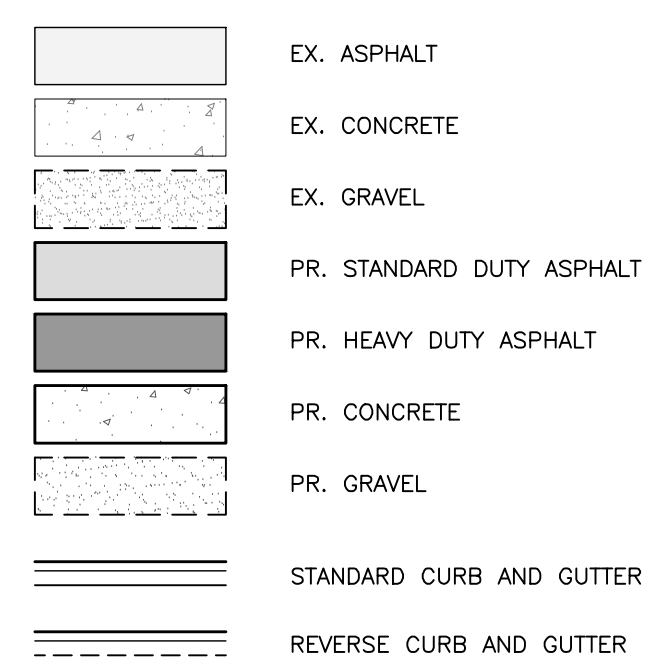
C-11

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PAVEMENT LEGEND



DIMENSIONING NOTE

- 1. DIMENSIONS ARE TO THE BACK OF CURB UNLESS OTHERWISE SPECIFIED.
FC = FACE OF CURB

MEGA logo and contact information for Monument Engineering Group Associates, Inc. including address and phone number.

Professional Engineer seal for Kevin C. McDevitt, No. 6201043260.

Call MISS DIG 3 full working days before you dig. Utility Notification Organization logo and contact info.

CLIENT: AUBURN ANGARA OAKS, LLC. 14496 N SHELDON RD SUITE 230 PLYMOUTH, MI 48170 BRUCE MICHAEL (248) 703-4653

DIMENSION & PAVING PLAN - NORTH. AUBURN ANGARA OAKS. PART OF SEC. 32, T3N, R11E CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

Table with columns: PLAN SUBMITTALS/REVISIONS, DATE, CITY. Rows include Revised Preliminary Site Plan, Construction Plan, etc.

ORIGINAL ISSUE DATE: 05/19/2022

PROJECT NO: 22-051

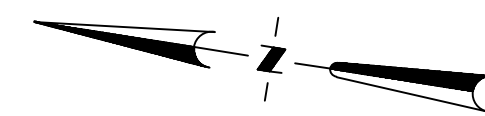
SCALE: 1" = 30'

FIELD: REICHERT, DRAWN BY: MN, DESIGN BY: KM, CHECK BY: AP

C-12

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DIMENSIONING NOTE

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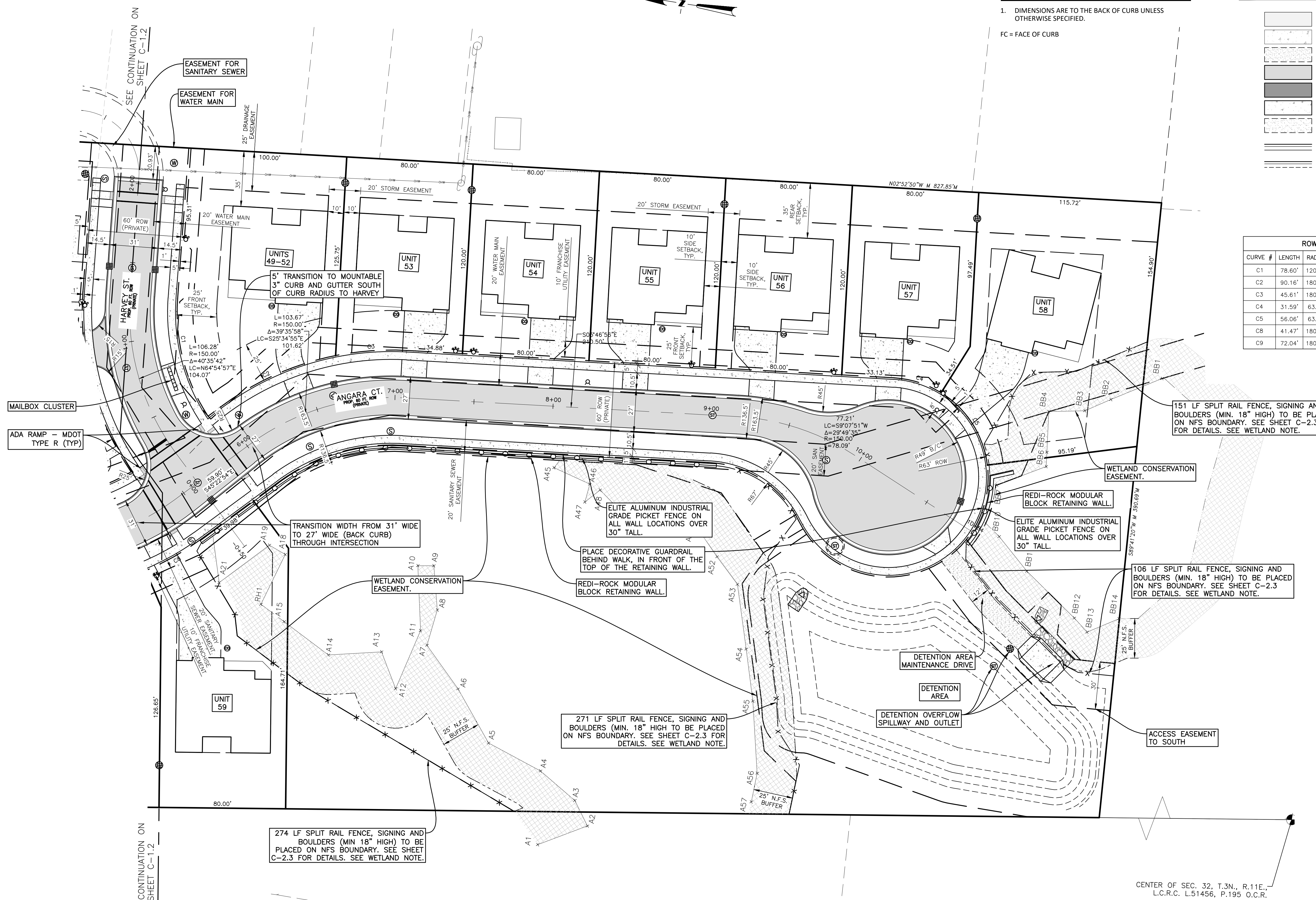
FC = FACE OF CURB

PAVEMENT LEGEND

- EX. ASPHALT
- EX. CONCRETE
- EX. GRAVEL
- PR. STANDARD DUTY ASPHALT
- PR. HEAVY DUTY ASPHALT
- PR. CONCRETE
- PR. GRAVEL
- STANDARD CURB AND GUTTER
- REVERSE CURB AND GUTTER

ROW CURVE TABLE

CURVE #	LENGTH	RADIUS	DELTA	CHORD
C1	78.60'	120.00'	37°31'52"	N66°26'52"E 77.21'
C2	90.16'	180.00'	28°41'57"	N34°38'58"W 89.22'
C3	45.61'	180.00'	14°31'03"	N13°02'28"W 45.49'
C4	31.59'	63.00'	28°43'37"	N08°34'53"E 31.26'
C5	56.06'	63.00'	50°58'58"	N48°26'11"E 54.23'
C8	41.47'	180.00'	13°11'57"	S38°46'55"E 41.37'
C9	72.04'	180.00'	22°55'54"	S20°43'00"E 71.56'



CENTER OF SEC. 32, T.3N., R.11E., L.C.R.C. L.51456, P.195 O.C.R.

WETLAND / NATURAL FEATURES BUFFER

PLACE SIGNS IMMEDIATELY BEHIND THE SPLIT RAIL FENCE SPACED AT 50 FEET ON CENTER. SIGNS SHALL BE A MINIMUM 18" X 12" AND SHALL STATE "TO PROTECT THE ADJACENT WETLAND, NO MOWING OR APPLICATION OF CHEMICALS SHALL BE ALLOWED BEHIND THE FENCE PURSUANT TO CITY ORDINANCE ARTICLE 9 NATURAL FEATURES BUFFER".

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(OFFICE) 517-223-3512  
MONUMENTENGINEERING.COM

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SMALL BUSINESS (SDVOSS)

KEVIN C. McDEVITT  
ENGINEER  
NO. 6201043260

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CLIENT :

**AUBURN ANGARA OAKS, LLC**

14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**DIMENSION & PAVING PLAN - SOUTH**

AUBURN ANGARA OAKS

PART OF SEC. 32, T.3N., R.11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/29/2024
ADDED WETLAND CONSERVATION EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #1	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #2	05/29/2025
CONSTRUCTION PLAN RESUBMITTAL #3	07/07/2025
WATER AND SANITARY PERMIT PLANS	08/01/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/29/2025

ORIGINAL ISSUE DATE: 05/19/2022

PROJECT NO: 22-051

SCALE: 1" = 30'

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**C-13**

NOT FOR CONSTRUCTION



**ROCHESTER HILLS DESIGN FIRE TRUCK**

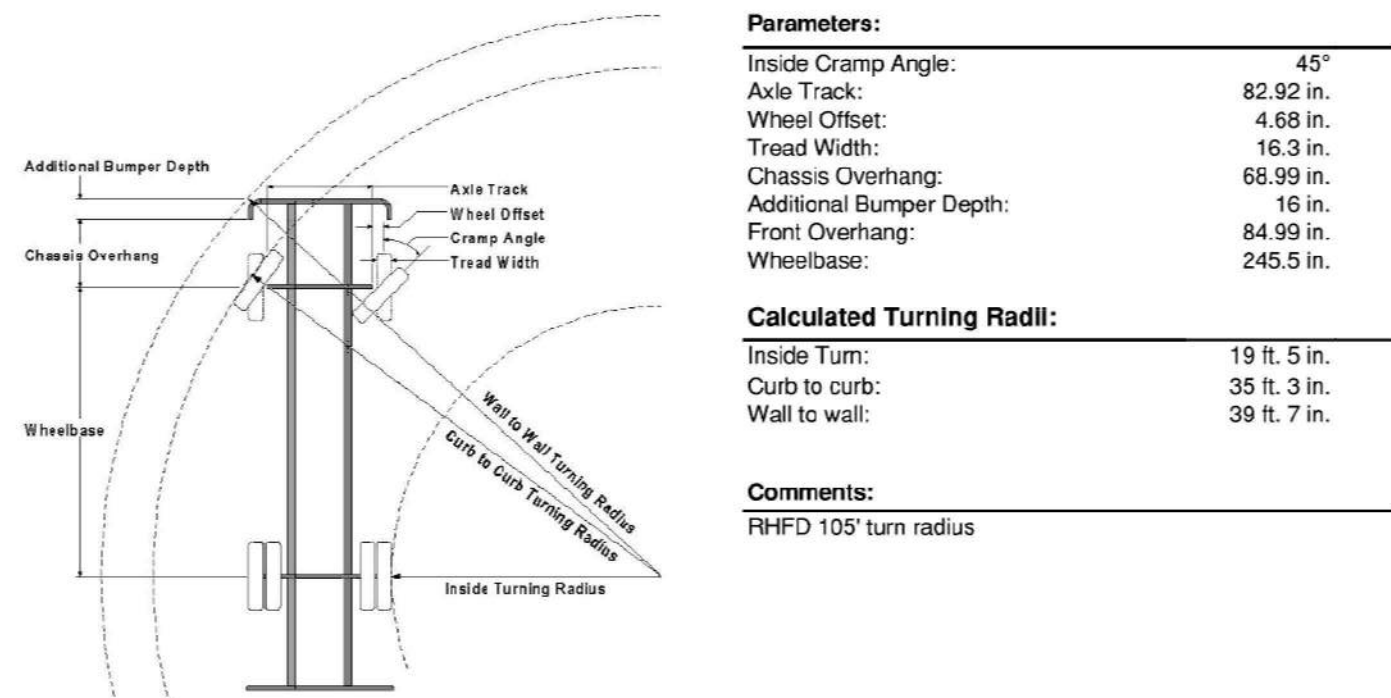
EMERGENCY VEHICLE WAS PROVIDED BY THE FIRE MARSHALL WITHIN THE MARKED UP SITE PLAN  
SUBMITTAL FOR PSP2022-0031 ON DATE 01/03/2023.



**Turning Performance Analysis**

02/28/2018

**Bid Number:** 1102  
**Department:** City of Rochester Hills  
**Chassis:** Arrow XT Chassis, Aerials/Tankers, Tandem Axle  
**Body:** Aerial, HD Ladder 105', Alum Body



**Parameters:**

Inside Cramp Angle:	45°
Axle Track:	82.92 in.
Wheel Offset:	4.68 in.
Tread Width:	16.3 in.
Chassis Overhang:	68.99 in.
Additional Bumper Depth:	16 in.
Front Overhang:	84.99 in.
Wheelbase:	245.5 in.

**Calculated Turning Radii:**

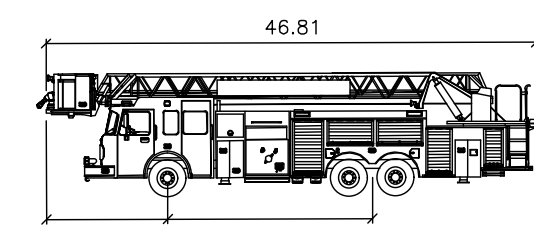
Inside Turn:	19 ft. 5 in.
Curb to curb:	39 ft. 3 in.
Wall to wall:	39 ft. 7 in.

**Comments:**  
RHFD 105' turn radius

Category	Option	Description
Axle, Front, Custom	0018453	Axle, Front, Oshkosh TAK 4, Non Drive, 22,800 lb, Qlm/AXT/DCF
Wheels, Front	0019611	Wheels, Front, Alcoa, 22.5" x 12.25", Aluminum, Hub Pilot
Tires, Front	0594821	Tires, Front, Goodyear, G296 MSA, 425/65R22.50, 20 ply
Bumpers	0606536	Bumper, 16" Extended, Steel Painted, Arrow XT
Aerial Devices	0673137	Aerial, 105' Heavy Duty Ladder (500 dry/500 water)

**Notes:**  
Actual inside cramp angle may be less due to highly specialized options.  
Curb to Curb turning radius calculated for 9.00 inch curb.

**AUTOTURN EMERGENCY VEHICLE**



MFPD 100' Aerial Platform Pierce Arrow XT

Width:	8.00 feet
Track:	8.00 feet
Lock to Lock Time:	6.0 seconds
Steering Angle:	45.0 degrees

**Note:** THE ABOVE TEMPLATE IS THE CLOSEST TRUCK AVAILABLE FOR USE IN THE STANDARD AUTOTURN LIBRARIES. IT HAS A SIMILAR PHYSICAL LAYOUT, WITH THE SAME LOCK ANGLE AND SLIGHTLY LARGER WHEELBASE AND TRACK.

**FIRE DEPARTMENT NOTES**

1. A KNOX KEY SYSTEM SHALL BE INSTALLED ON EACH MULTI-UNIT BUILDING IN A LOCATION APPROVED BY THE FIRE CODE OFFICIAL. ORDERING INFORMATION IS AVAILABLE THROUGH THE KNOX COMPANY AT WWW.KNOXBOX.COM (IFC 2006 SEC.1028.2)
2. FIRE LANES SHALL BE DESIGNATED BY THE FIRE CODE OFFICIAL, AND SHALL BE CONSPICUOUSLY POSTED ON BOTH SIDES OF THE FIRE LANE, WITH FIRE LANE SIGNS SPACED NOT MORE THAN 100 FEET APART. FIRE LANE SIGNS SHALL READ "NO STOPPING, STANDING, PARKING, FIRE LANE" AND SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (FIRE PREVENTION ORDINANCE CHAPTER 58, SEC 503)
3. CONSTRUCTION SITES SHALL BE SAFEGUARDED IN ACCORDANCE WITH IFC 2006 CHAPTER 14.
4. OPEN BURNING IS NOT PERMITTED, INCLUDING THE BURNING OF TRASH, DEBRIS, OR LAND CLEARING. OPEN BURNING FOR WARMING OF SAND AND / OR WATER FOR THE PREPARATION OF MORTAR SHALL BE WITHIN THE CITY OF ROCHESTER HILLS BURN PERMIT GUIDELINES FIRE PREVENTION ORDINANCE CHAPTER 58, SEC 307.6.2 & 307.6.2.3) MORTAR PERMIT CAN BE APPLIED FOR ONLINE AT WWW.ROCHESTERHILLS.ORG/FIRE IN THE "FOR YOUR BUSINESS" SECTION.
5. PROVIDE A "NO PARKING FIRE DEPARTMENT CONNECTION" SIGN OVER EACH FIRE DEPARTMENT CONNECTION.
6. FDC'S SHALL NOT BE OBSTRUCTED BY LANDSCAPING, PARKING, OR ANY OTHER PERMANENT OR TEMPORARY MATERIALS OR DEVICES.
7. IF THE FIRE DEPARTMENT CONNECTION IS NOT LOCATED ON THE STREET FRONT OF THE BUILDING, A WHITE / CLEAR STROBE LIGHT SHALL BE TIED INTO THE FIRE ALARM SYSTEM AND INSTALLED OVER THE FDC.
8. SEE ARCHITECTURAL PLANS FOR BUILDING CONSTRUCTION MATERIALS AND INFORMATION PERTAINING TO BUILDING FIRE CODES.
9. ON STREET PARKING (EXCEPT FOR THE 12 NOTED PARKING SPACES) WILL NOT BE PERMITTED IN THE AREA OF THE MULTI-FAMILY BUILDINGS DUE TO THE NATURE OF THE ROADWAY BEING USED AS THE AERIAL FIRE APPARATUS ACCESS ROAD. FIRE LANE SIGNS WILL BE POSTED AND ENFORCED IN THESE AREAS.
10. THIS PROJECT MAY BE REQUIRED TO PERFORM EMERGENCY RADIO SIGNAL STRENGTH TESTING. TESTING FAILURE WILL REQUIRE INSTALLATION OF AN IN-BUILDING TWO-WAY EMERGENCY RESPONDER COMMUNICATION SYSTEM. CONTACT RHFD FOR MORE INFORMATION REGARDING THIS EQUIPMENT.

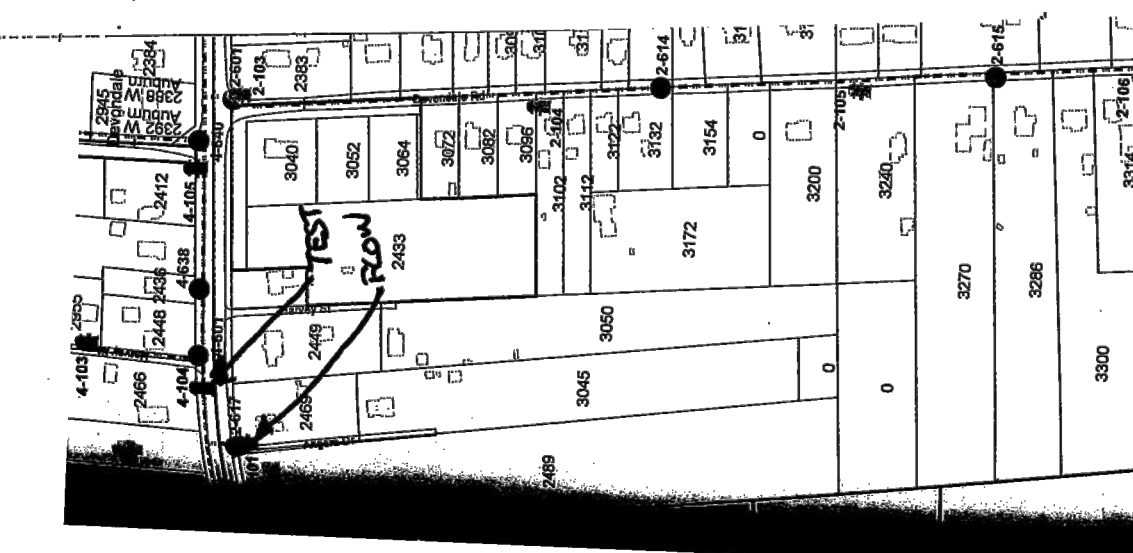
**HYDRANT PRESSURE TEST**

CITY OF ROCHESTER HILLS  
HYDRANT FLOW TEST

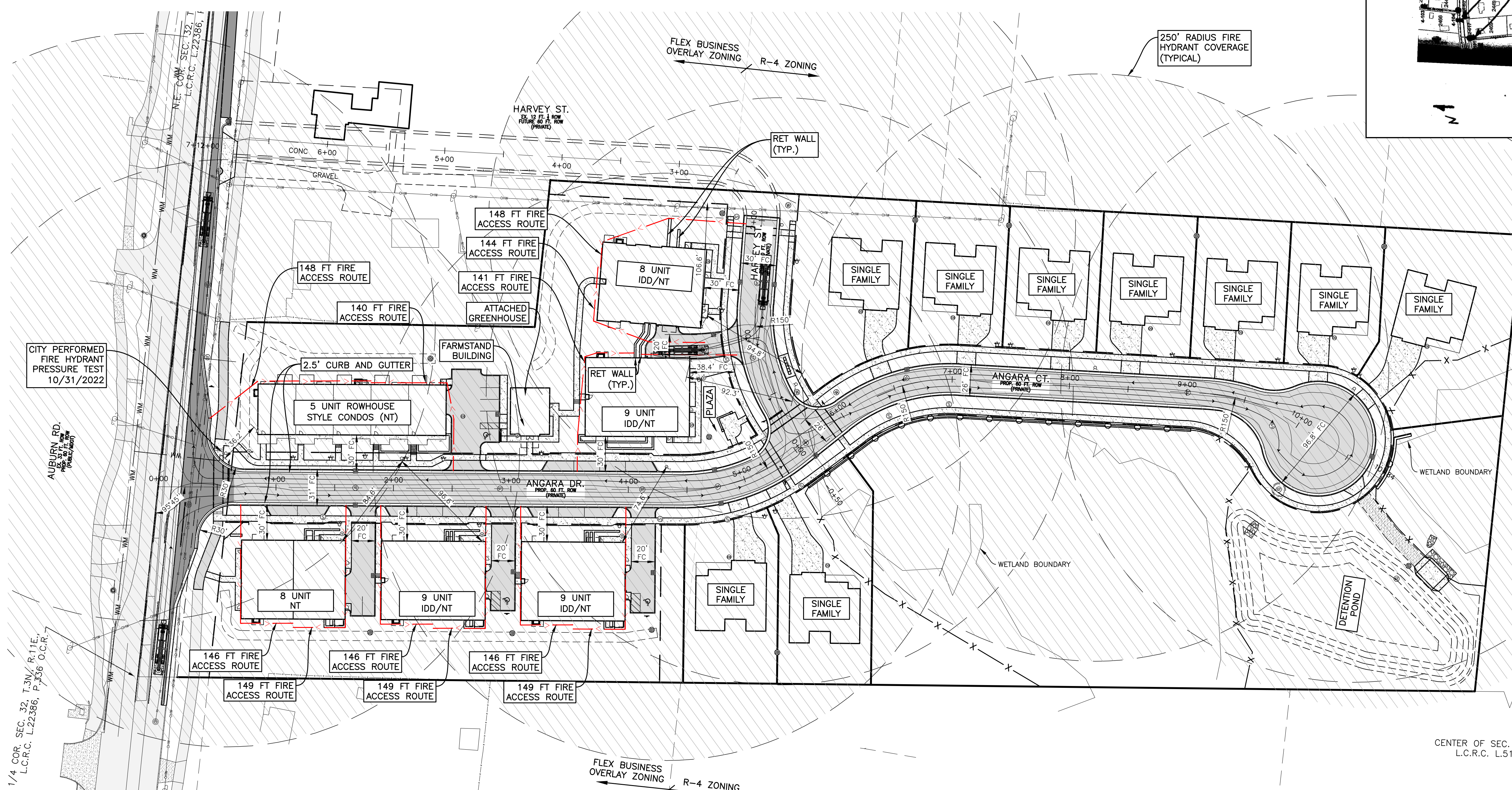
Date: 10/31/22 Time: 9:30 AM Test Performed By: W. Rybak, M. Greenwood  
Location: Auburn Rd @ Angara Calculations Performed By: Wayne Rybak

Number of Hydrants Flowing:	1
Number of Outlets Open:	2
Size of Outlet, D (inches):	2 1/2
Friction Loss Coefficient, C <sub>f</sub> :	9
Static Pressure, P <sub>s</sub> (psi):	64
Residual Pressure, P <sub>r</sub> (psi):	50
Pipe Pressure, P <sub>p</sub> (psi):	33
Residual Flow, Q <sub>r</sub> (GPM):	1927
Fire Flow at 20 psi, Q <sub>f</sub> (GPM):	3576
Supply Main Size (to hydrant):	8"
Supply Main Size (at hydrant):	16"

Drawing of Flow Test Sites (include location of flow & test hydrant):



Post-Test Flow Note  
To: [Name]  
From: [Name]  
City: C.O. R.H.  
Phone: 248.978.6582  
Fax: [Number]

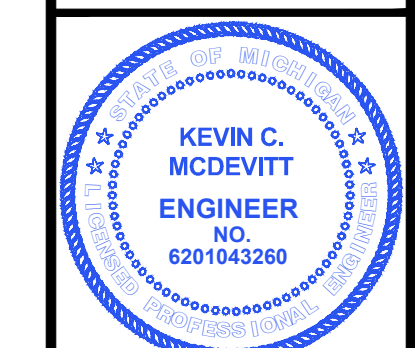


**DIMENSIONING NOTE**

1. DIMENSIONS ARE TO THE BACK OF CURB UNLESS OTHERWISE SPECIFIED.
- FC = FACE OF CURB

**BUILDING SQUARE FOOTAGE**

MULTIFAMILY	
BUILDING/UNIT	TOTAL SF
<b>ROWHOUSE STYLE CONDOS</b>	
TOP 2 FLOORS (LIVING)	11,097
(BASEMENT)	7,347
<b>APARTMENT BUILDINGS</b>	
A (TOP 2 FLOORS - LIVING)	11,792
A (BASEMENT)	5,896
B (TOP 2 FLOORS)	11,792
B (BASEMENT)	5,896
C (TOP 2 FLOORS)	11,792
C (BASEMENT)	5,896
D (TOP 2 FLOORS)	11,792
D (BASEMENT)	5,896
E (TOP 2 FLOORS)	11,792
E (BASEMENT)	5,896
<b>SINGLE FAMILY</b>	
1	2,449 (GROSS)
2	2,449 (GROSS)
3	2,449 (GROSS)
4	2,449 (GROSS)
5	2,449 (GROSS)
6	2,449 (GROSS)
7	2,449 (GROSS)
8	2,449 (GROSS)
9	2,449 (GROSS)



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**AUBURN ANGARA OAKS, LLC**  
14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**FIRE PROTECTION PLAN**  
AUBURN ANGARA OAKS  
PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/29/2024
ADDED WETLAND CONSIDERATION	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #1	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #2	05/29/2025
CONSTRUCTION PLAN RESUBMITTAL #3	07/07/2025
WATER AND SANITARY PERMIT PLANS	08/01/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/26/2025

ORIGINAL ISSUE DATE:  
05/19/2022  
PROJECT NO: 22-051  
SCALE: 1" = 50'  
FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**C-21**

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INFORMATION ON THIS SHEET HAS BEEN COPIED FROM THE ARCHITECTURAL PLANS. SEE ARCHITECTURAL PLAN SET FOR SEAL AND SIGNATURE OF DESIGN PROFESSIONAL.

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CLIENT :

**AUBURN ANGARA OAKS, LLC**

14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

### BUILDING CODE ANALYSIS - SINGLE FAMILY HOMES

**Project Address:**  
Auburn Anagra Oaks Development - Single Family Style homes  
3046 Anagra Drive  
Rochester Hills, Michigan 48309

**Description of Work:**  
Proposed new single family detached homes.

**Reference Standards:**  
2015 Michigan Residential Code (Includes Building, Mechanical, Electrical & Plumbing)  
2015 Michigan Residential Code - Chapter 11 (Energy)  
2019 NFPA, 13D, Fire Sprinkler Systems  
2013 NFPA 72 - Fire Alarm Code

### BUILDING CODE ANALYSIS - MULTIFAMILY BUILDINGS

**Code Analysis summary, tagged to Planning Review comments. See Architectural sheet T1.2 for complete information**

**Project Address:**  
Auburn Anagra Oaks Development - Charlevoix Model Multi-Family Building.  
3046 Anagra Drive  
Rochester Hills, Michigan 48309

**Description of Work:**  
Proposed new 9 unit, residential apartment (condominium) building.

**Reference Standards:**  
Michigan Building Code (2021) ICC/ANSI A117.1 and Michigan Barrier Free Design Law (2017)  
MI Commercial Energy Code (2021) International Fire Code (2021)  
ASHRAE 90.1 (2019) NFPA 13 - Fire Sprinkler Systems (2019)  
Michigan Mechanical Code (2021) NFPA 72 - Fire Alarm Code (2013)  
Michigan Plumbing Code (2021) Michigan Electrical Code (IEC + Part 8 State amendments) (2023)

**Residential (Primary use - dwelling units/ accessory spaces) Use Group R-2**  
**Storage (Low-hazard storage / parking garage) Use Group S-2**

**Separated Mixed Use:** Per Sect. 508.4, requires min. 1 hour fire separation between S and R uses (in building w/ 903.3.1.1 [full NFPA-13] compliant sprinkler system)

**Type of Construction:** VB - (2) stories above grade w/ (1) story below grade garage

ALLOWABLE HEIGHT and BUILDING AREAS (per TABLES 504.3, 504.4 & 506.2):

Use Group:	Height (Feet)	Height (Stories)
S-2 (Parking garage) @ Type 5B constr'n	60 feet	3 stories
R-2 (Permanent dwelling) @ Type 5B constr'n	60 feet	3 stories
ACTUAL building height in Feet/Stories	29'-11"	2 Stories

\*NFPA 13 complying with Section 903.3.1.1 (and **NOT** NFPA13R 903.3.1.2)

ALLOWABLE BUILDING AREA (per story):

Floor (Use Groups):	Max. Allowed* (sf)	Provided (sf)
Basement (Garage) Level: (S-2)	40,500	5,588
First Floor: (R-2)	21,000	5,700
Second Floor: (R-2)	21,000	5,708
TOTAL ACTUAL BLDG. AREA		16,996

\*NFPA 13 complying with Section 903.3.1.1 (and **NOT** NFPA13R 903.3.1.2)

**CHAPTER 9 Fire Protection Systems**

	Yes	No	X
(903) Automatic Sprinkler System Fully Sprinkled	Yes	No	X
NFPA 13 or 13R	13	X	13R
(905) Standpipe System *	Yes	No	X
(907) Alarm System	Yes	X	No
Smoke Control System	Yes	No	X
Fire Control Room	Yes	No	X

\* highest floor is 21'-4" = less than 30' above lowest fire vehicle access

Separation of multiple buildings on site per Sect. 503.1.2, 602

**Exterior Rating based on Fire Separation Distance per Table 602**

	Fire Sep'n Dist. (ft)	Req'd Rating	UL Listing and Notes
North	10' or more	0 hr.	n/a
East	10' or more	0 hr.	n/a
South	10' or more	0 hr.	n/a
West	10' or more	0 hr.	n/a

### BUILDING CODE ANALYSIS - FARM STAND BUILDING

**Code Analysis summary, tagged to Planning Review comments. See Architectural sheet T1.2 for complete information**

**Project Address:**  
Auburn Anagra Oaks Development - Produce Sales Market Building and Greenhouse.  
3046 Anagra Drive  
Rochester Hills, Michigan 48309

**Description of Work:**  
Proposed new one-story Market building for fresh produce sales and attached agricultural greenhouse for produce production.

**Reference Standards:**  
Michigan Building Code (2021) ICC/ANSI A117.1 and Michigan Barrier Free Design Law (2017)  
MI Commercial Energy Code (2021) International Fire Code (2021)  
ASHRAE 90.1 (2019) NFPA 13 - Fire Sprinkler Systems (2019)  
Michigan Mechanical Code (2021) NFPA 72 - Fire Alarm Code (2013)  
Michigan Plumbing Code (2021) Michigan Electrical Code (IEC + Part 8 State amendments) (2023)

**Mercantile (Retail market space for produce sales) Use Group M**  
**Utility (Agricultural greenhouse for production of fresh produce) Use Group U**

**Unseparated Mixed Use:** Per Sect. 508.3, most restrictive allowances shall apply to the entire building.

**Type of Construction:** VB - (1) stories above grade on slab-on-grade

ALLOWABLE HEIGHT and BUILDING AREAS (per TABLES 504.3, 504.4 & 506.2):

Use Group:	Height (Feet)	Height (Stories)
M (Mercantile) - Type 5B constr'n*	40 feet	1 stories
U (Greenhouse) - Type 5B constr'n*	40 feet	1 Story
ACTUAL building height in Feet/Stories	17'-8 1/2"	1 Story

ALLOWABLE AREA SUMMARY (per story): \*no sprinkler system required, per Section 903.2

Floor (Use Groups):	Max. Allowed (sf)	Provided (sf)
M (Mercantile) - Type 5B constr'n*	9,000	476
U (Greenhouse) - Type 5B constr'n*	5,500	801
TOTAL ACTUAL BLDG. AREA (unseparated)	9,000	1,277

\*no sprinkler system required, per Section 903.2

**CHAPTER 9 Fire Protection Systems**

	Yes	No	X
(903) Automatic Sprinkler System Fully Sprinkled	Yes	No	X
NFPA 13 or 13R	13	No	X
(905) Standpipe System *	Yes	No	X
(907) Alarm System	Yes	No	X
Smoke Control System	Yes	No	X
Fire Control Room	Yes	No	X

Separation of multiple buildings on site per Sect. 503.1.2, 602

**Exterior Rating based on Fire Separation Distance per Table 602**

	Fire Sep'n Dist. (ft)	Req'd Rating	UL Listing and Notes
North	10' or more	0 hr.	n/a
East	10' or more	0 hr.	n/a
South	10' or more	0 hr.	n/a
West	10' or more	0 hr.	n/a

### BUILDING CODE ANALYSIS - ROWHOUSE STYLE ATTACHED CONDOS

**Code Analysis summary, tagged to Planning Review comments. See Architectural sheet T1.2 for complete information**

**Project Address:**  
Auburn Anagra Oaks Development - Rowhouse-style Multi-Family Building.  
3046 Anagra Drive  
Rochester Hills, Michigan 48309

**Description of Work:**  
Proposed new 5 unit, residential apartment (condominium) building.

**Reference Standards:**  
Michigan Building Code (2021) ICC/ANSI A117.1 and Michigan Barrier Free Design Law (2017)  
MI Commercial Energy Code (2021) International Fire Code (2021)  
ASHRAE 90.1 (2019) NFPA 13 - Fire Sprinkler Systems (2019)  
Michigan Mechanical Code (2021) NFPA 72 - Fire Alarm Code (2013)  
Michigan Plumbing Code (2021) Michigan Electrical Code (IEC + Part 8 State amendments) (2023)

**Residential (Primary use - dwelling units/ accessory spaces) Use Group R-2**  
**Storage (Low-hazard storage / parking garage) Use Group S-2**

**Separated Mixed Use:** Per Sect. 508.4, requires min. 1 hour fire separation between S and R uses (in building w/ 903.3.1.1 [full NFPA-13] compliant sprinkler system)

**Type of Construction:** VB - (2) stories above grade w/ (1) story below grade garage

ALLOWABLE HEIGHT and BUILDING AREAS (per TABLES 504.3, 504.4 & 506.2):

Use Group:	Height (Feet)	Height (Stories)
S-2 (Parking garage) @ Type 5B constr'n	60 feet	3 stories
R-2 (Permanent dwelling) @ Type 5B constr'n	60 feet	3 stories
ACTUAL building height in Feet/Stories	27'-9"	2 Stories

\*NFPA 13 complying with Section 903.3.1.1 (and **NOT** NFPA13R 903.3.1.2)

ALLOWABLE BUILDING AREA (per story):

Floor (Use Groups):	Max. Allowed* (sf)	Provided (sf)
Basement (Garage) Level: (S-2)	40,500	4,315
First Floor: (R-2)	21,000	6,782
Second Floor: (R-2)	21,000	7,347
TOTAL ACTUAL BLDG. AREA		18,444

\*NFPA 13 complying with Section 903.3.1.1 (and **NOT** NFPA13R 903.3.1.2)

**CHAPTER 9 Fire Protection Systems**

	Yes	No	X
(903) Automatic Sprinkler System Fully Sprinkled	Yes	No	X
NFPA 13 or 13R	13	X	13R
(905) Standpipe System *	Yes	No	X
(907) Alarm System	Yes	X	No
Smoke Control System	Yes	No	X
Fire Control Room	Yes	No	X

\* highest floor is 21'-1" = less than 30' above lowest fire vehicle access

Separation of multiple buildings on site per Sect. 503.1.2, 602

**Exterior Rating based on Fire Separation Distance per Table 602**

	Fire Sep'n Dist. (ft)	Req'd Rating	UL Listing and Notes
North	10' or more	0 hr.	n/a
East	10' or more	0 hr.	n/a
South	10' or more	0 hr.	n/a
West	10' or more	0 hr.	n/a

**CODE ANALYSIS**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E

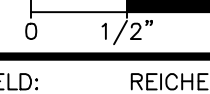
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

DATE	DESCRIPTION
09/04/2024 <td>REUSED PRELIMINARY SITE PLAN TO CITY</td>	REUSED PRELIMINARY SITE PLAN TO CITY
11/20/2024 <td>CONSTRUCTION PLAN SUBMITTAL</td>	CONSTRUCTION PLAN SUBMITTAL
12/19/2024 <td>ADDED WETLAND CONSIDERATION</td>	ADDED WETLAND CONSIDERATION
04/02/2025 <td>CONSTRUCTION PLAN RESUBMITTAL</td>	CONSTRUCTION PLAN RESUBMITTAL
05/29/2025 <td>CONSTRUCTION PLAN RESUBMITTAL #2</td>	CONSTRUCTION PLAN RESUBMITTAL #2
07/07/2025 <td>WATER AND SANITARY PERMIT PLANS</td>	WATER AND SANITARY PERMIT PLANS
08/01/2025 <td>CONSTRUCTION PLAN RESUBMITTAL #4</td>	CONSTRUCTION PLAN RESUBMITTAL #4

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

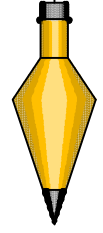
SCALE: 1" = 50'



FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**C-2.2**

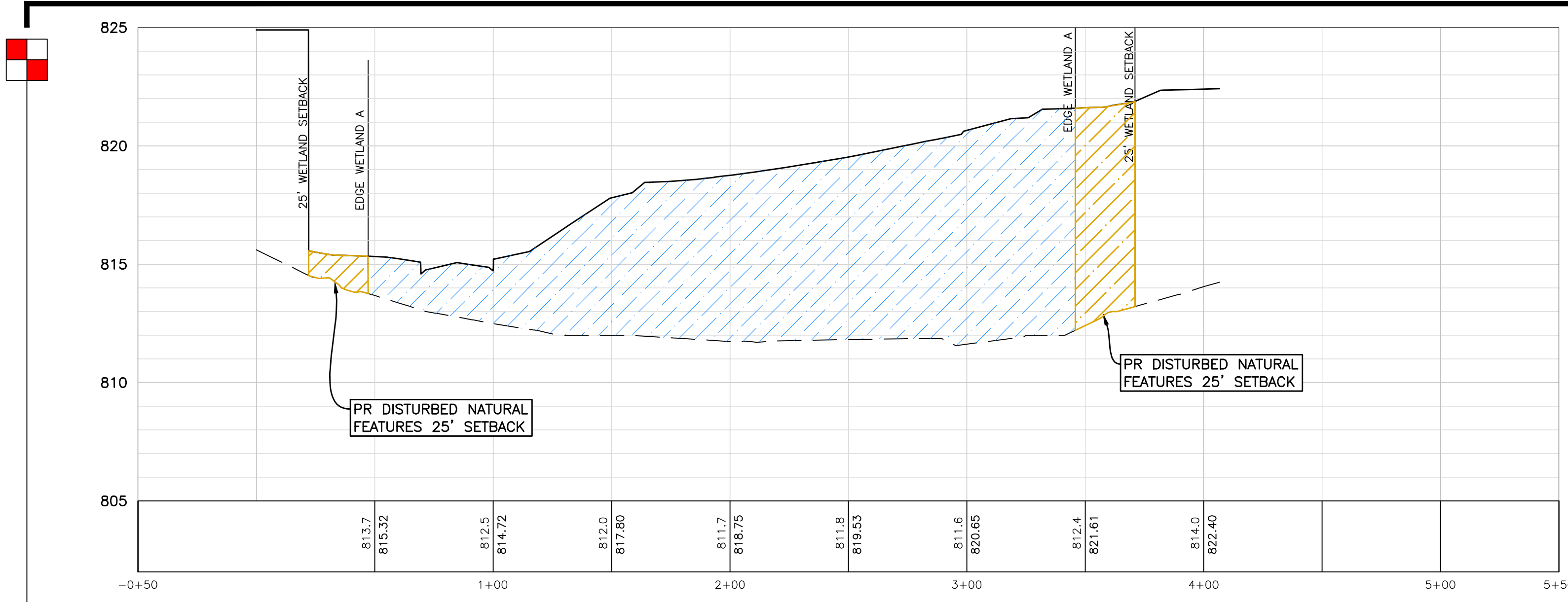
NOT FOR CONSTRUCTION





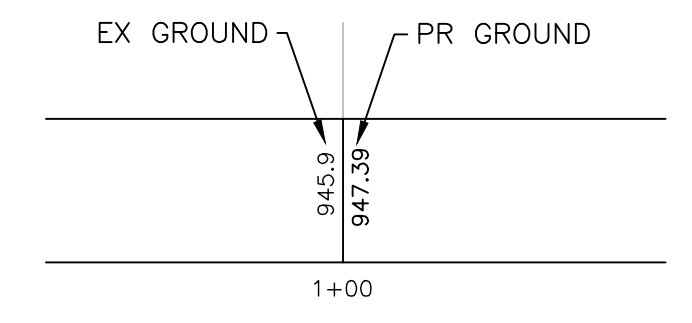
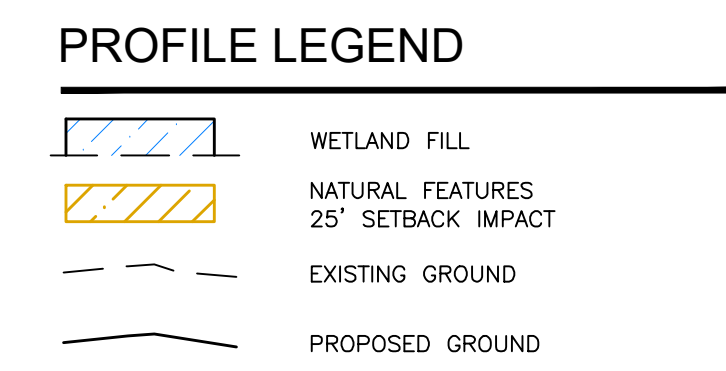




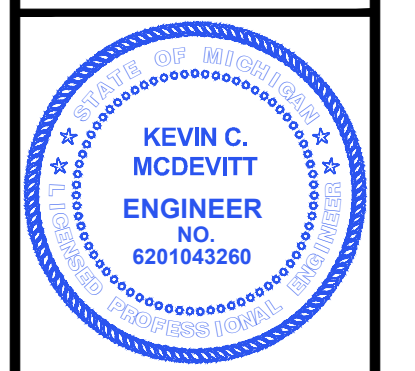


**CROSS SECTION A-A**

PROFILE SCALE  
HORIZ: 1"=40'  
VERT: 1"=4'



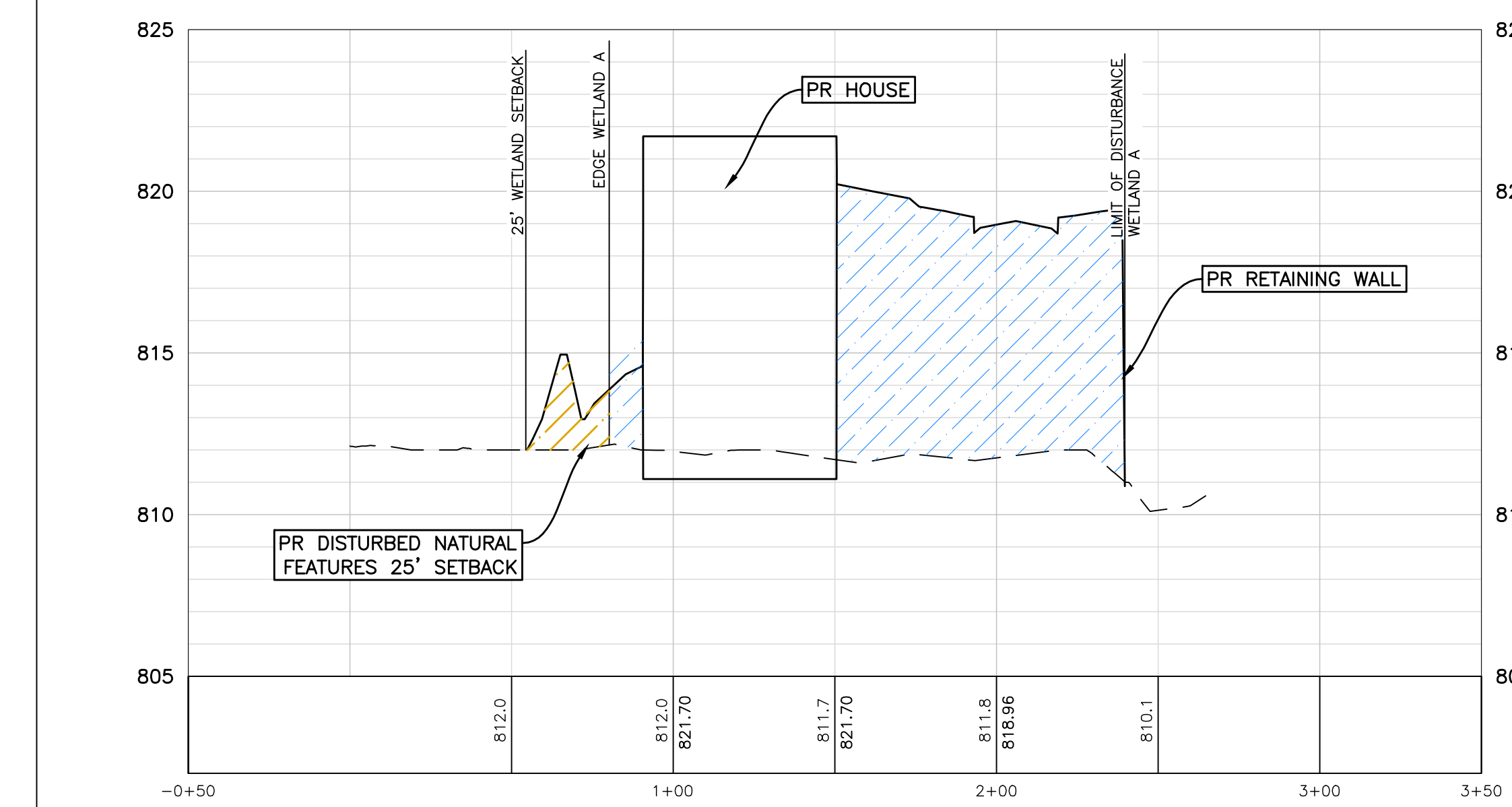
INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS  
**MEGA**  
MONUMENT ENGINEERING GROUP ASSOCIATES, INC.  
298 VETERANS DRIVE  
FOWLERVILLE, MICHIGAN 48836  
(OFFICE) 517-223-3512  
MONUMENTENGINEERING.COM  
SERVICE DISABLED VETERAN OWNED  
SMALL BUSINESS (SDVOBS)



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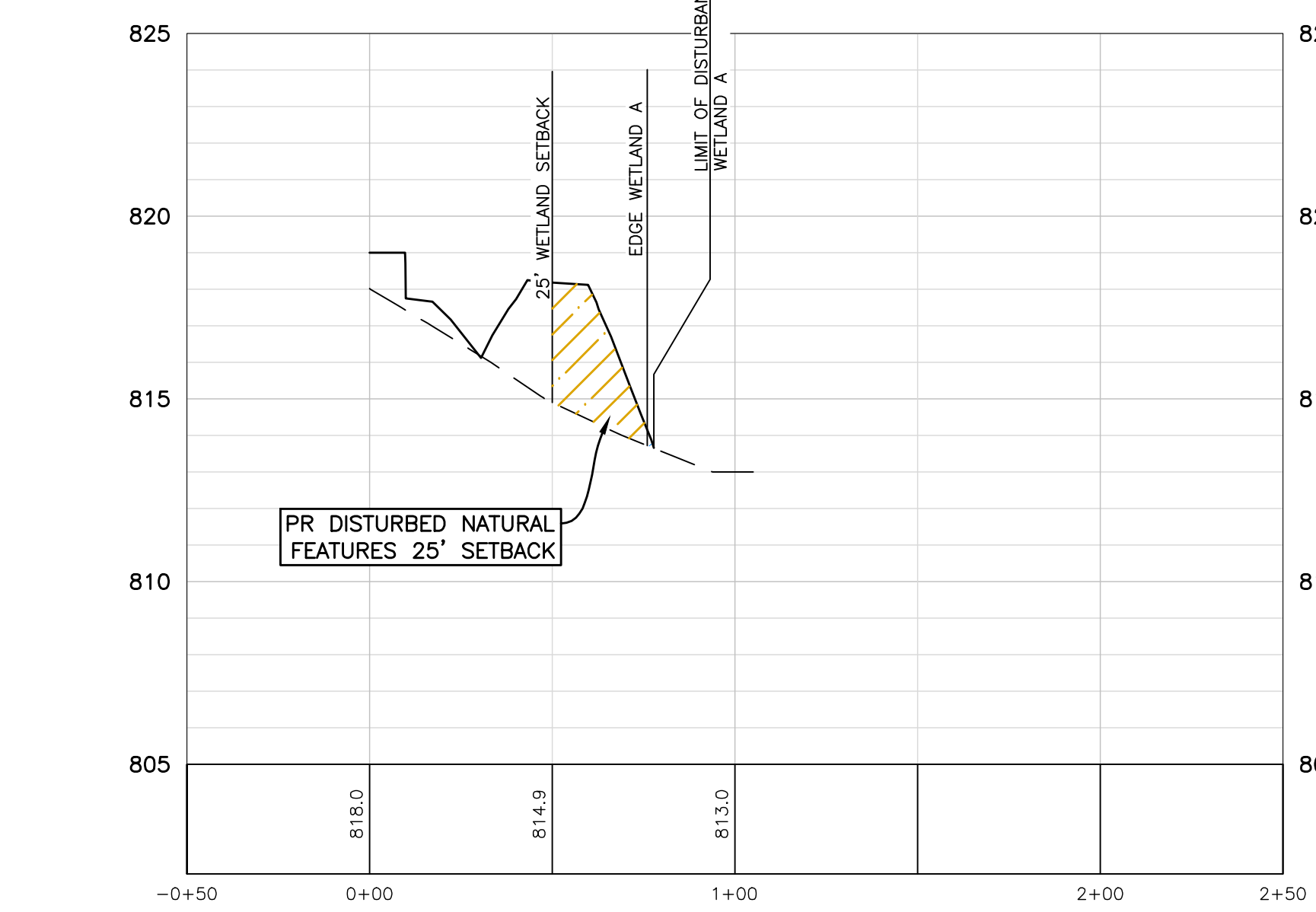
**AUBURN ANGARA OAKS, LLC**  
14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**WETLAND CROSS SECTIONS**  
AUBURN ANGARA OAKS  
PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI



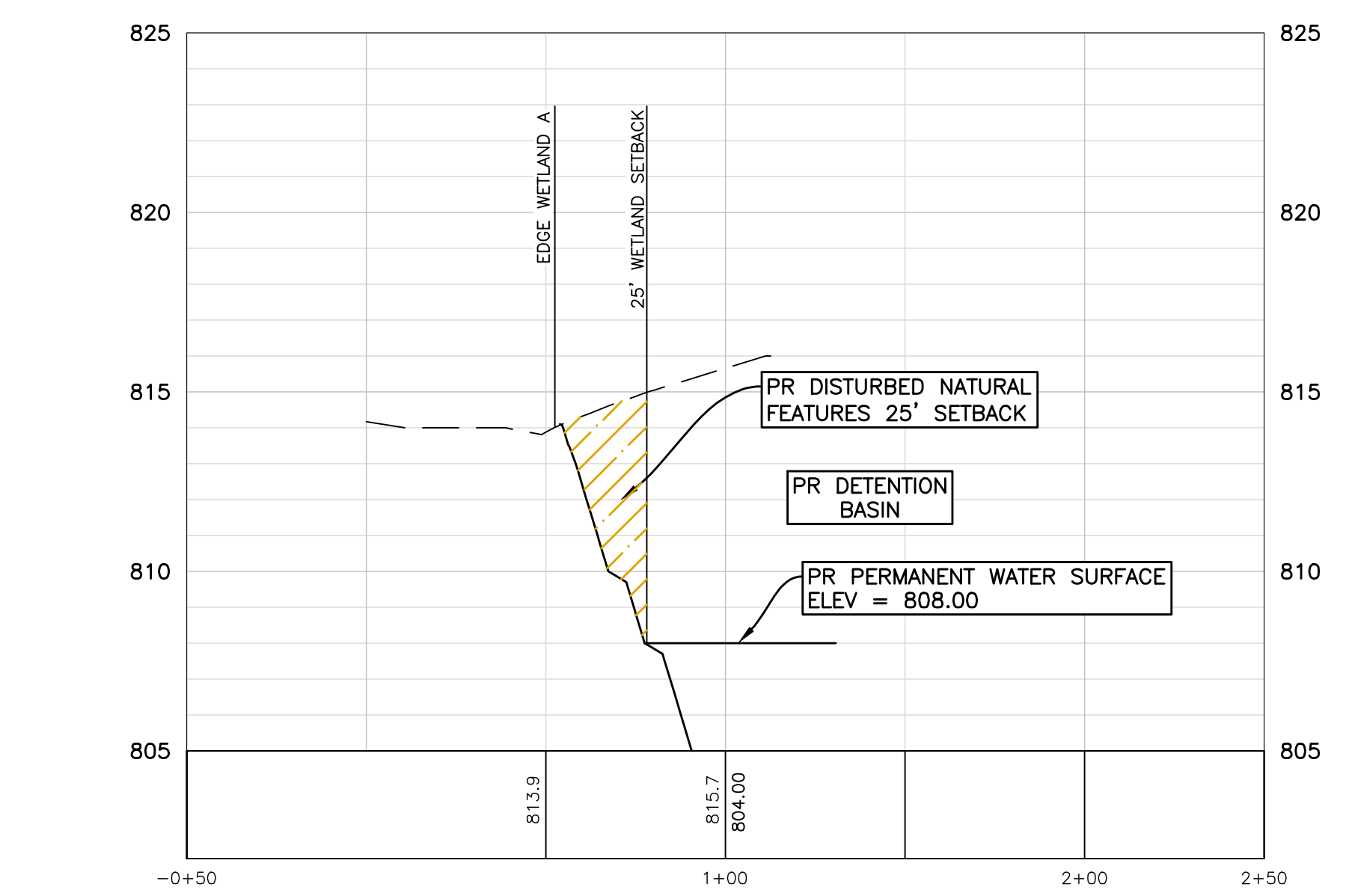
**CROSS SECTION B-B**

PROFILE SCALE  
HORIZ: 1"=40'  
VERT: 1"=4'



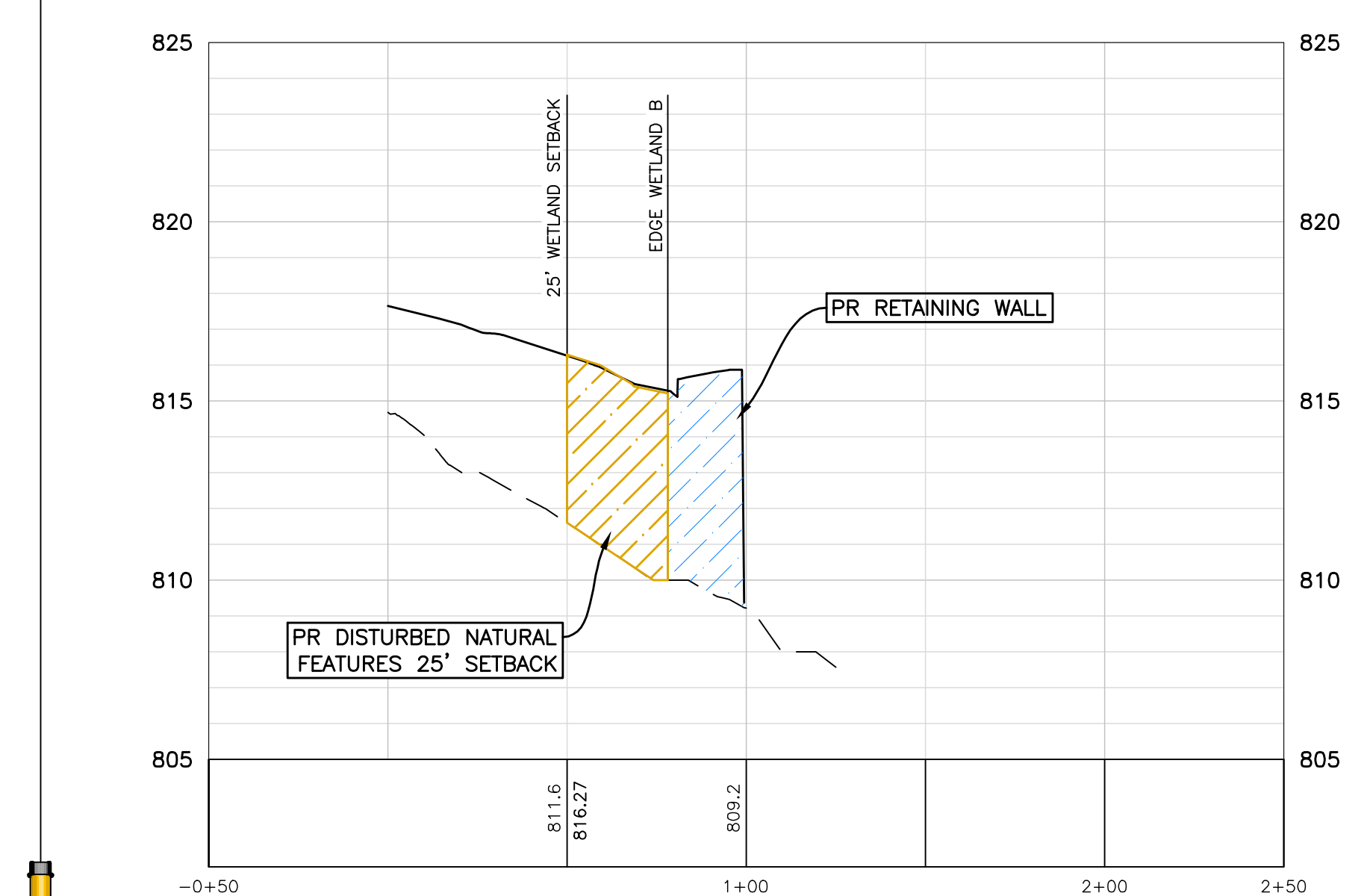
**CROSS SECTION C-C**

PROFILE SCALE  
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VERT: 1"=4'



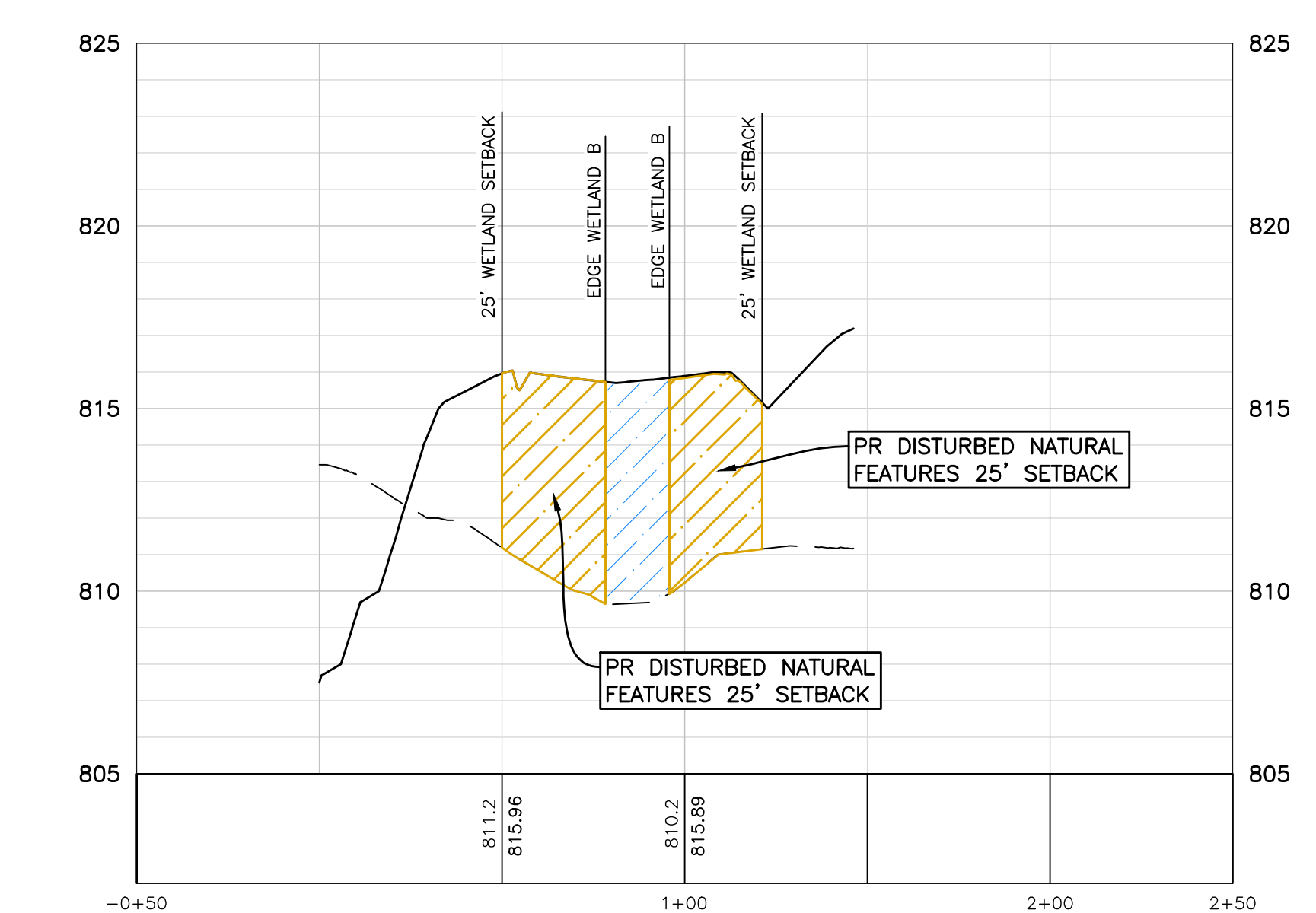
**CROSS SECTION D-D**

PROFILE SCALE  
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VERT: 1"=4'



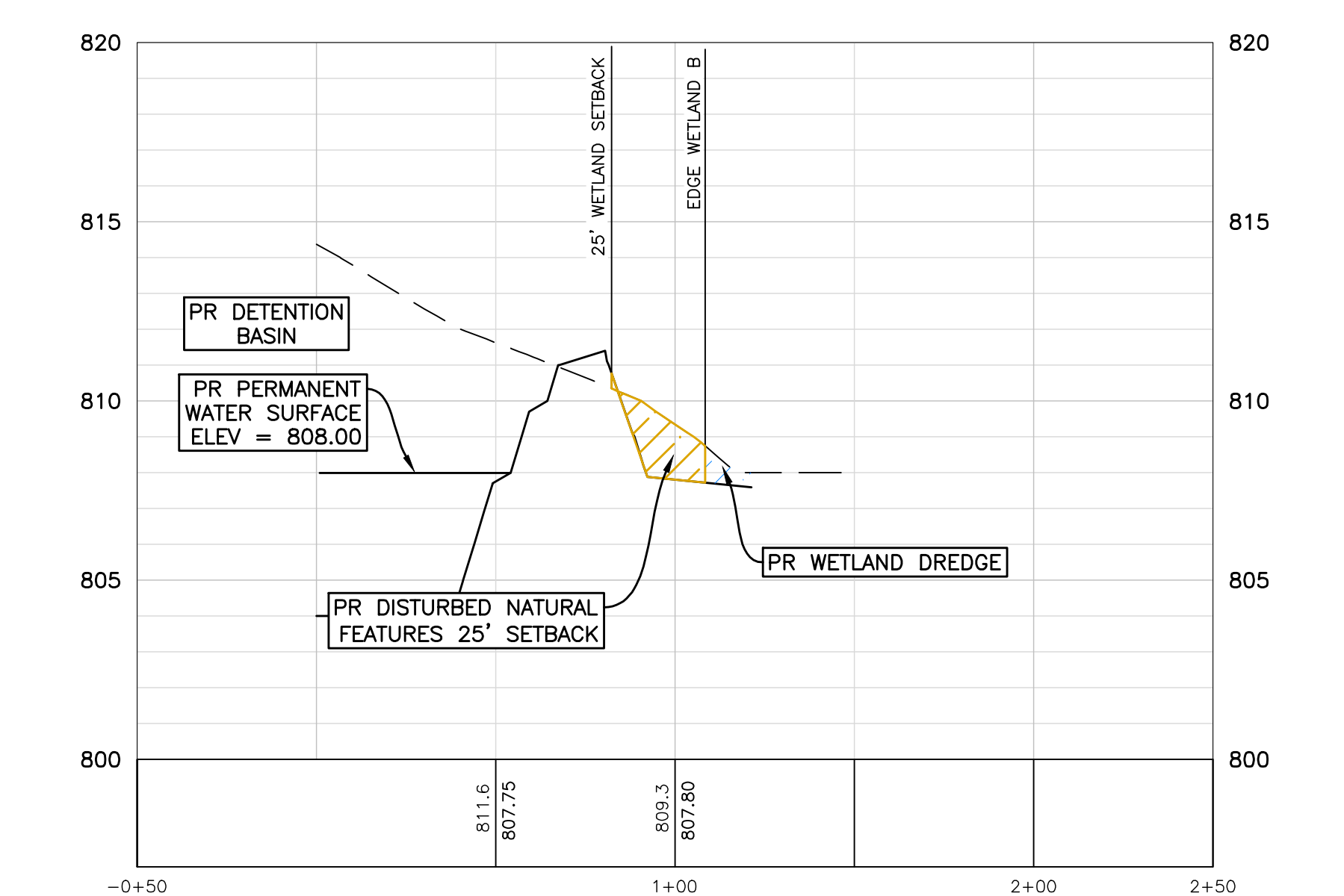
**CROSS SECTION E-E**

PROFILE SCALE  
HORIZ: 1"=40'  
VERT: 1"=4'



**CROSS SECTION F-F**

PROFILE SCALE  
HORIZ: 1"=40'  
VERT: 1"=4'



**CROSS SECTION G-G**

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/20/2024
ADDED WETLAND CONTS. EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #2	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #3	05/29/2025
WATER AND SANITARY PERMIT PLANS	07/07/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/01/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/26/2025

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

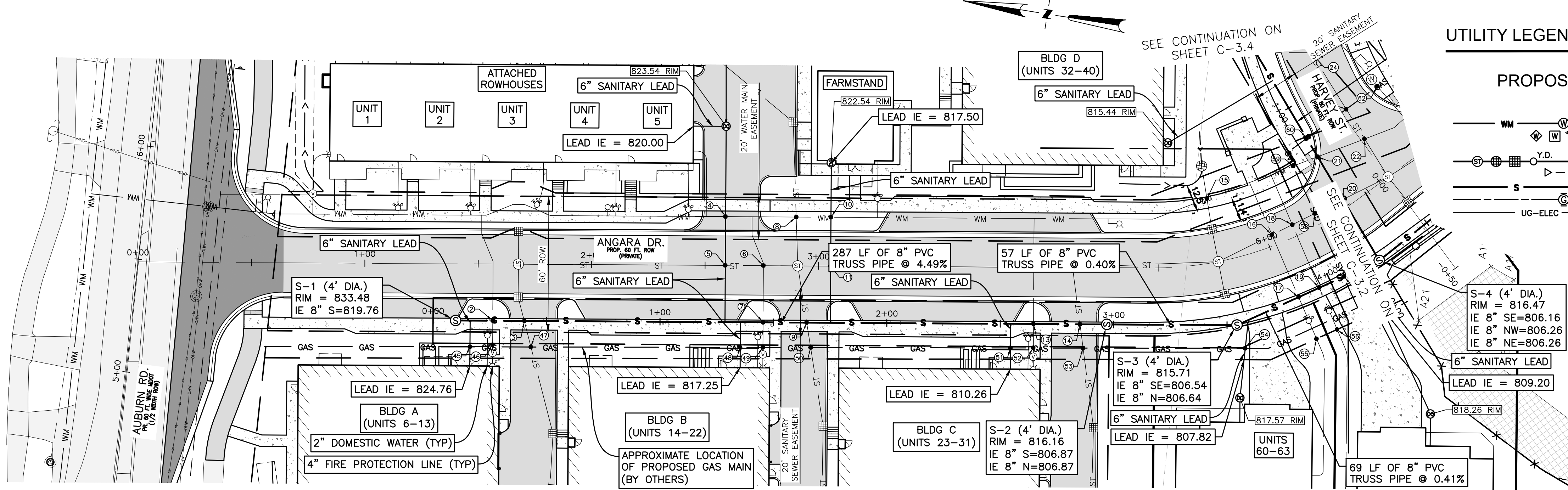
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FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

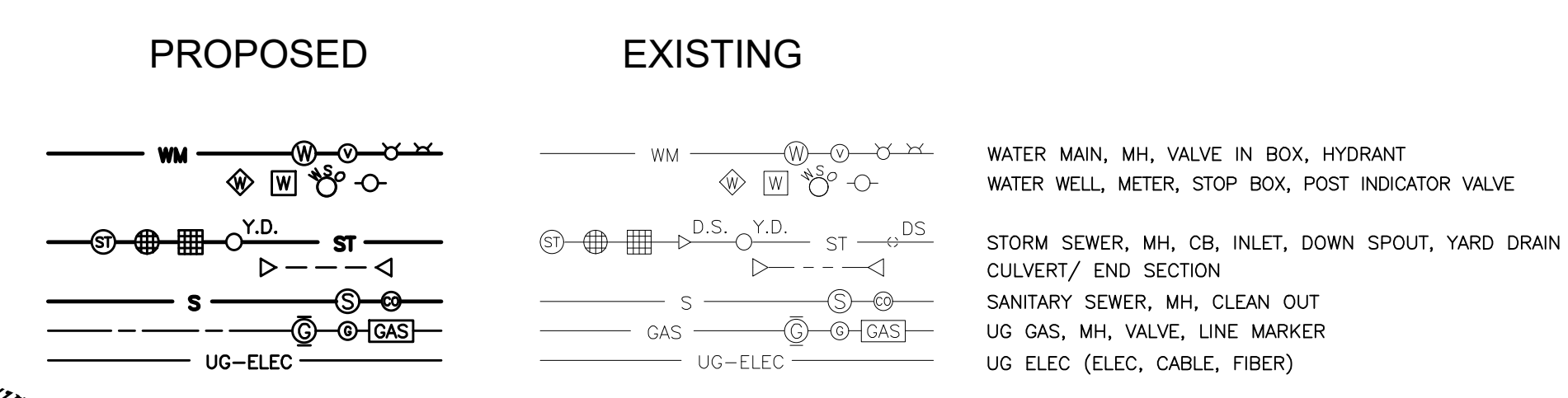
**C-2.4**

NOT FOR CONSTRUCTION





**UTILITY LEGEND**



**SANITARY SEWER NOTES**

1. SANITARY "MH" SHALL HAVE EIJM 1040 FRAME WITH TYPE A COVER.
2. ALL SEWER LEADS SHALL BE PVC SDR 23.5 PIPE.
3. ALL SEWER MAIN SHALL BE PVC TRUSS PIPE (200 PSI) FOR OPEN CUT AND SDR 26 PIPE FOR DIRECTIONAL BORE.
4. ALL SANITARY LEADS SHALL HAVE CLEANOUTS INSTALLED A MAXIMUM 5' FROM THE BUILDING FACE. BUILDING CLEANOUTS SHALL BE IDENTIFIED ON THE BUILDING MEP PLANS.

**SANITARY SEWER QUANTITIES**

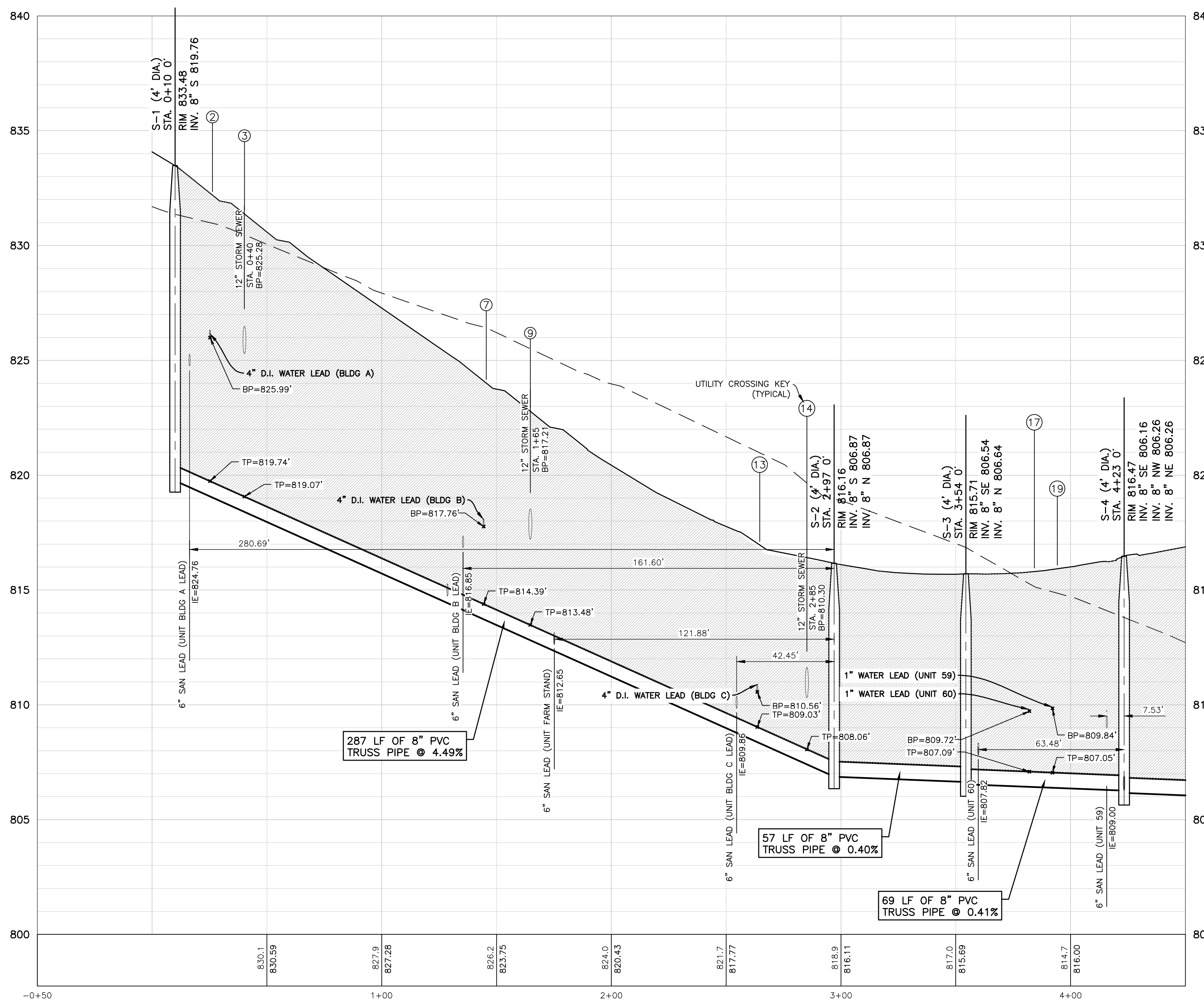
QTY	UNIT	ITEM
413	LF	8" PVC TRUSS PIPE
232	LF	6" PVC SDR 23.5
3	EA	4" MANHOLE
2	EA	CLEANOUT

**CROSSING SCHEDULE**

NOTE: MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES. PROPOSED GAS MAIN IS ASSUMED TO BE 3" AND INSTALLED WITH 4 FEET OF COVER.

- UTILITY CROSSING KEY
- ABBREVIATIONS:  
IE = INVERT ELEVATION  
TP = TOP OF PIPE  
BP = BOTTOM OF PIPE

2	4" WATER LEAD / FIRE SUPPRESSION BP	= 825.99	
3	8" SANITARY SEWER TP	= 819.74	
4	12" STORM SEWER BP	= 825.28	
5	8" SANITARY MAIN TP	= 819.07	
6	8" WATER MAIN BP	= 817.92	
7	6" SANITARY LEAD TP	= 816.14	
8	12" STORM SEWER BP	= 819.70	
9	6" SANITARY LEAD TP	= 815.73	
10	4" WATER LEAD / FIRE SUPPRESSION BP	= 817.76	
11	8" SANITARY SEWER TP	= 814.39	
12	12" STORM SEWER BP	= 817.21	
13	8" SANITARY SEWER TP	= 813.48	
14	6" SANITARY LEAD BP	= 815.83	
15	8" WATER MAIN TP	= 814.33	
16	12" STORM SEWER BP	= 815.79	
17	6" SANITARY LEAD TP	= 814.87	
18	4" WATER LEAD / FIRE SUPPRESSION BP	= 810.56	
19	8" SANITARY SEWER TP	= 809.03	
20	12" STORM SEWER BP	= 810.30	
21	8" SANITARY SEWER TP	= 808.07	
22	1" WATER LEAD BP	= 809.72	
23	8" SANITARY SEWER TP	= 807.09	
24	1" WATER LEAD BP	= 809.84	
25	8" SANITARY SEWER TP	= 807.05	
26	45	GAS MAIN BP	= 827.28
27	46	6" SANITARY LEAD TP	= 825.09
28	47	GAS MAIN BP	= 819.15
29	48	6" SANITARY LEAD TP	= 817.58
30	49	GAS MAIN BP	= 812.26
31	50	6" SANITARY LEAD TP	= 810.59
32	51	GAS MAIN BP	= 812.51
33	52	6" SANITARY LEAD TP	= 807.95



ANGARA DRIVE - SANITARY SEWER 0+00 TO STA. 4+00

**SANITARY SEWER BASIS OF DESIGN**

Monument Engineering Group Associates, Inc.  
298 Veterans Drive, Fowlerville, MI 48836  
(517) 223-3512  
monumentengineering.com

Date: 3/27/2025

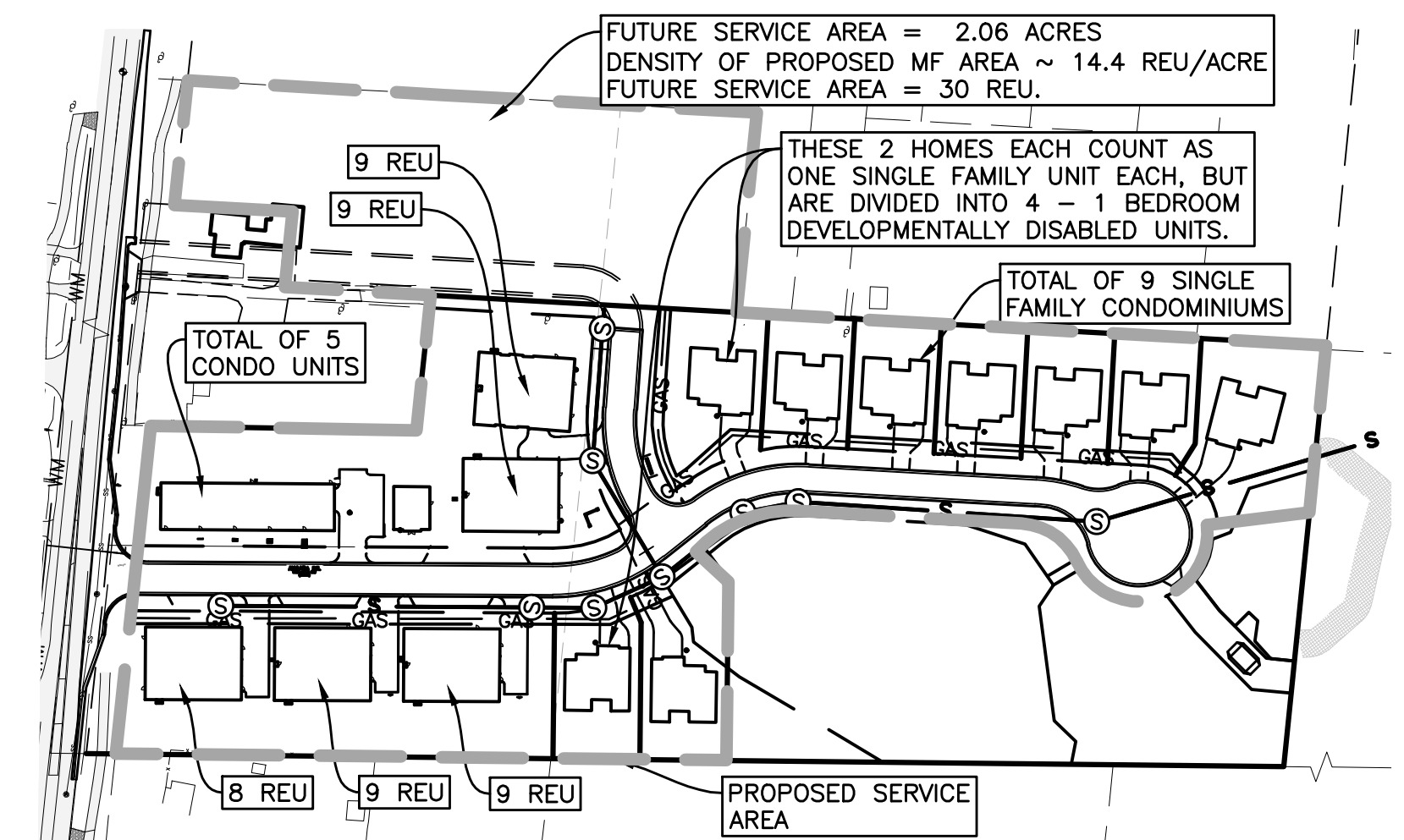
PROJECT NAME: Angara Drive Site Condominium  
PROJECT LOCATION: City of Rochester Hills, Oakland County, Michigan  
MEGA PROJECT NO.: 22-051

THE FOLLOWING CALCULATIONS UTILIZE A MODIFIED OAKLAND COUNTY METHODOLOGY WHERE 1 UNIT EQUALS ONE MULTI-FAMILY RESIDENTIAL DWELLING WITH AN ASSUMED NUMBER OF PERSONS PER DWELLING OF 2.44.

NUMBER OF UNITS = 49 MF UNITS, 30 FUTURE UNITS AND 9 SF UNITS = 88 UNITS  
ASSUMED NUMBER OF PEOPLE PER UNIT = 2.44  
EQUIVALENT POPULATION = UNITS x PEOPLE PER UNIT = 88 x 2.44 = 214.72 PEOPLE  
AVERAGE DAILY FLOW = POPULATION x 100 GPPDC = 214.72 x 100 = 21472 GPD = 0.0332 CFS

PEAKING FACTOR = (18 + (P\*0.5)) / (4 + (P\*0.5)) = 4.136637138 (USE MAXIMUM OF 4)  
PEAK HOUR FLOW = PEAKING FACTOR x AVERAGE DAILY FLOW = 4 x 21472 = 85888 GPD = 0.1329 CFS = 59.6 GPM

**SANITARY SERVICE AREA MAP**



INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS

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**AUBURN ANGARA OAKS, LLC**

14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**SANITARY SEWER PLAN AND PROFILE**

**STA 0+00 TO 4+00 (ALONG ANGARA DRIVE)**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

DATE	DESCRIPTION
09/04/2024	PLAN SUBMITTALS/REVISIONS
11/20/2024	REVISED PRELIMINARY SITE PLAN TO CITY
11/20/2024	CONSTRUCTION PLAN SUBMITTAL
12/19/2024	ADDED WETLAND CONSIDERATION
04/02/2025	CONSTRUCTION PLAN RESUBMITTAL #1
05/29/2025	CONSTRUCTION PLAN RESUBMITTAL #2
07/07/2025	WATER AND SANITARY PERMIT PLANS
08/01/2025	CONSTRUCTION PLAN RESUBMITTAL #3
08/26/2025	CONSTRUCTION PLAN RESUBMITTAL #4

ORIGINAL ISSUE DATE: 05/19/2022

PROJECT NO: 22-051

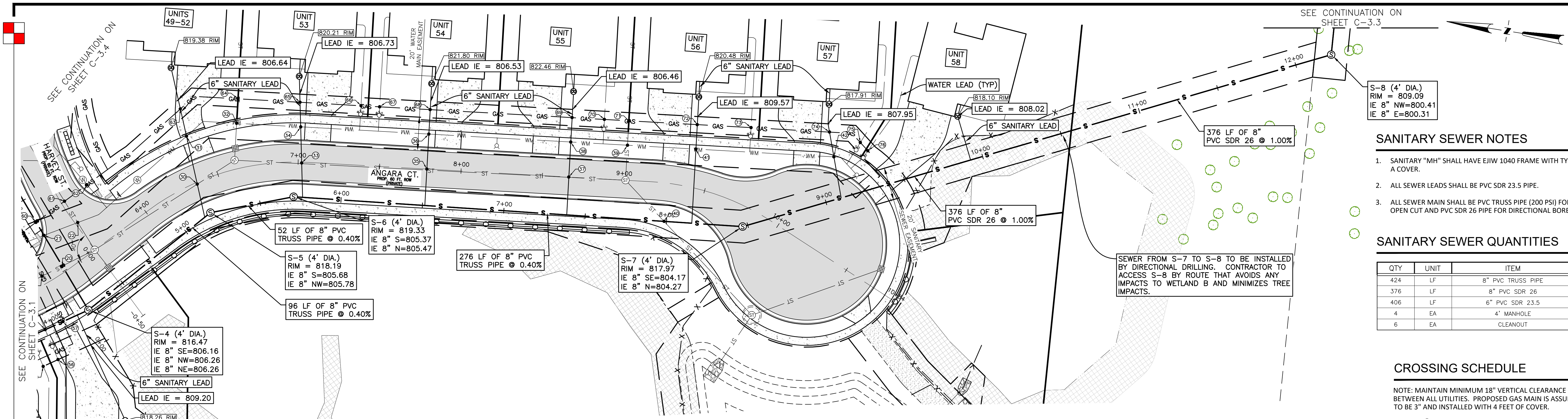
SCALE: 1" = 30'

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**C-3.1**

NOT FOR CONSTRUCTION





**SANITARY SEWER NOTES**

1. SANITARY "MH" SHALL HAVE EI/W 1040 FRAME WITH TYPE A COVER.
2. ALL SEWER LEADS SHALL BE PVC SDR 23.5 PIPE.
3. ALL SEWER MAIN SHALL BE PVC TRUSS PIPE (200 PSI) FOR OPEN CUT AND PVC SDR 26 PIPE FOR DIRECTIONAL BORE.

**SANITARY SEWER QUANTITIES**

QTY	UNIT	ITEM
424	LF	8" PVC TRUSS PIPE
376	LF	8" PVC SDR 26
406	LF	6" PVC SDR 23.5
4	EA	4' MANHOLE
6	EA	CLEANOUT

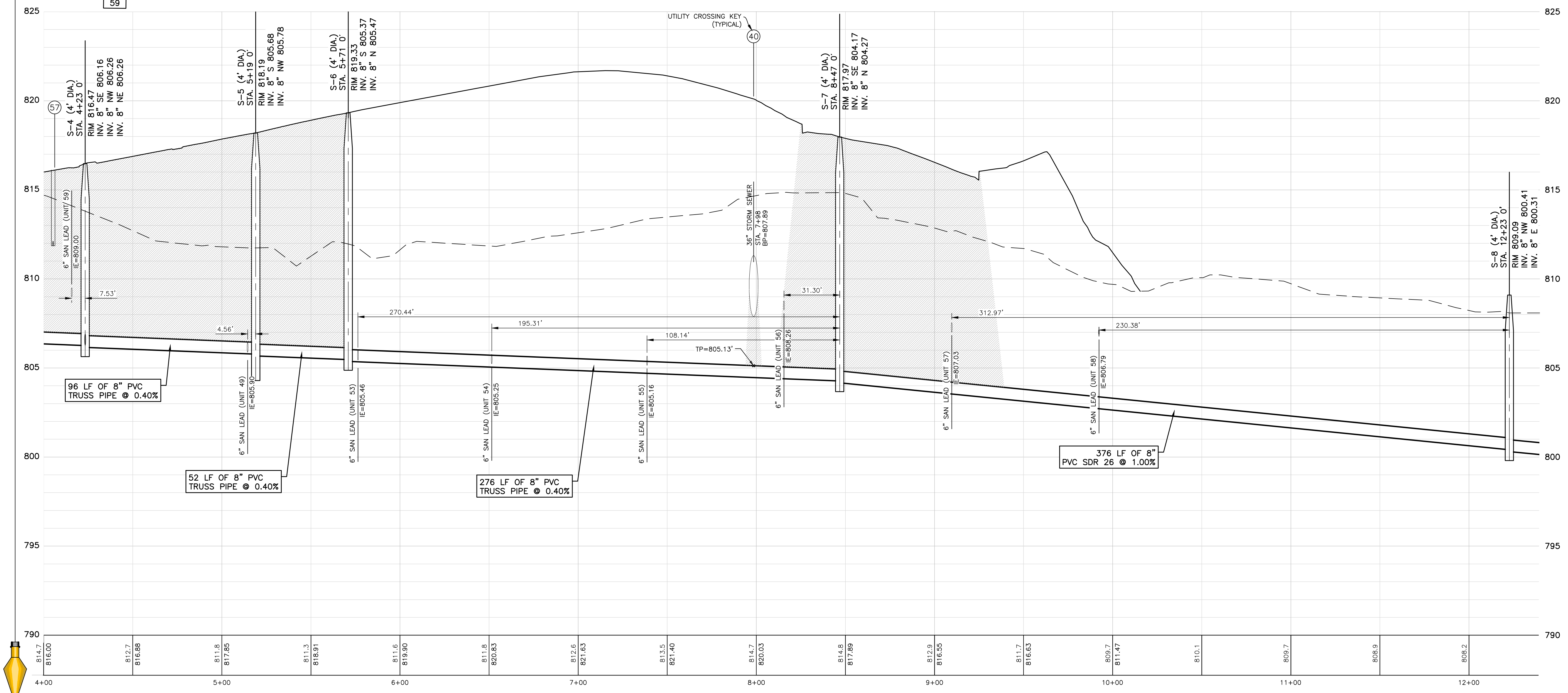
SEWER FROM S-7 TO S-8 TO BE INSTALLED BY DIRECTIONAL DRILLING. CONTRACTOR TO ACCESS S-8 BY ROUTE THAT AVOIDS ANY IMPACTS TO WETLAND B AND MINIMIZES TREE IMPACTS.

**CROSSING SCHEDULE**

NOTE: MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES. PROPOSED GAS MAIN IS ASSUMED TO BE 3" AND INSTALLED WITH 4 FEET OF COVER.

UTILITY CROSSING KEY  
 ABBREVIATIONS:  
 IE = INVERT ELEVATION  
 TP = TOP OF PIPE  
 BP = BOTTOM OF PIPE

30	36" STORM SEWER BP	= 808.13
31	6" SANITARY LEAD TP	= 806.62
32	8" WATER MAIN BP	= 810.99
33	6" SANITARY LEAD TP	= 806.91
34	36" STORM SEWER BP	= 808.08
35	6" SANITARY LEAD TP	= 806.39
36	8" WATER MAIN BP	= 812.59
37	6" SANITARY LEAD TP	= 806.82
38	36" STORM SEWER BP	= 808.01
39	6" SANITARY LEAD TP	= 806.20
40	8" WATER MAIN BP	= 814.05
41	6" SANITARY LEAD TP	= 806.63
42	36" STORM SEWER BP	= 807.95
43	6" SANITARY LEAD TP	= 806.13
44	8" WATER MAIN BP	= 814.05
45	6" SANITARY LEAD TP	= 806.56
46	36" STORM SEWER BP	= 807.89
47	8" SANITARY SEWER TP	= 805.13
48	8" WATER MAIN BP	= 812.47
49	6" SANITARY LEAD TP	= 809.67
50	8" WATER MAIN BP	= 810.03
51	6" SANITARY LEAD TP	= 808.04
52	8" SANITARY SEWER TP	= 807.00
53	6" SANITARY LEAD TP	= 807.00
54	GAS MAIN BP	~ 811.86
55	8" SANITARY SEWER TP	= 807.00
56	6" SANITARY LEAD TP	= 807.08
57	GAS MAIN BP	~ 815.69
58	6" SANITARY LEAD TP	= 807.13
59	GAS MAIN BP	~ 817.05
60	6" SANITARY LEAD TP	= 806.93
61	GAS MAIN BP	~ 817.72
62	6" SANITARY LEAD TP	= 806.86
63	GAS MAIN BP	~ 815.92
64	6" SANITARY LEAD TP	= 809.97
65	GAS MAIN BP	~ 813.19
66	6" SANITARY LEAD TP	= 808.39



ANGARA DRIVE - SANITARY SEWER 4+00 TO STA. 12+22  
 PROFILE SCALE  
 HORIZ: 1" = 30'  
 VERT: 1" = 3'

INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS  
**MEGA**  
 ENGINEERING GROUP ASSOCIATES  
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 (OFFICE) 517-223-3512  
 MONUMENTENGINEERING.COM  
 SERVICE DISABLED VETERAN OWNED  
 SMALL BUSINESS (SDVOSB)

KEVIN C. McDEVITT  
 ENGINEER  
 NO. 6201043260

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 Michigan's Utility Notification Organization  
 1-800-482-7171  
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**AUBURN ANGARA OAKS, LLC**  
 14496 N SHELDON RD  
 SUITE 230  
 PLYMOUTH, MI 48170  
 BRUCE MICHAEL  
 (248) 703-4653

**SANITARY SEWER PLAN AND PROFILE**  
**STA 4+00 TO 12+22 (ALONG ANGARA COURT)**  
 AUBURN ANGARA OAKS  
 PART OF SEC. 32, T3N, R11E  
 CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

DATE	DESCRIPTION
09/04/2024	REVISED PRELIMINARY SITE PLAN TO CITY
11/29/2024	CONSTRUCTION PLAN SUBMITTAL
12/19/2024	ADDED WETLAND CONSIDERATION
04/02/2025	CONSTRUCTION PLAN RESUBMITTAL #1
05/29/2025	CONSTRUCTION PLAN RESUBMITTAL #2
07/07/2025	WATER AND SANITARY PERMIT PLANS
08/01/2025	CONSTRUCTION PLAN RESUBMITTAL #3
08/26/2025	CONSTRUCTION PLAN RESUBMITTAL #4

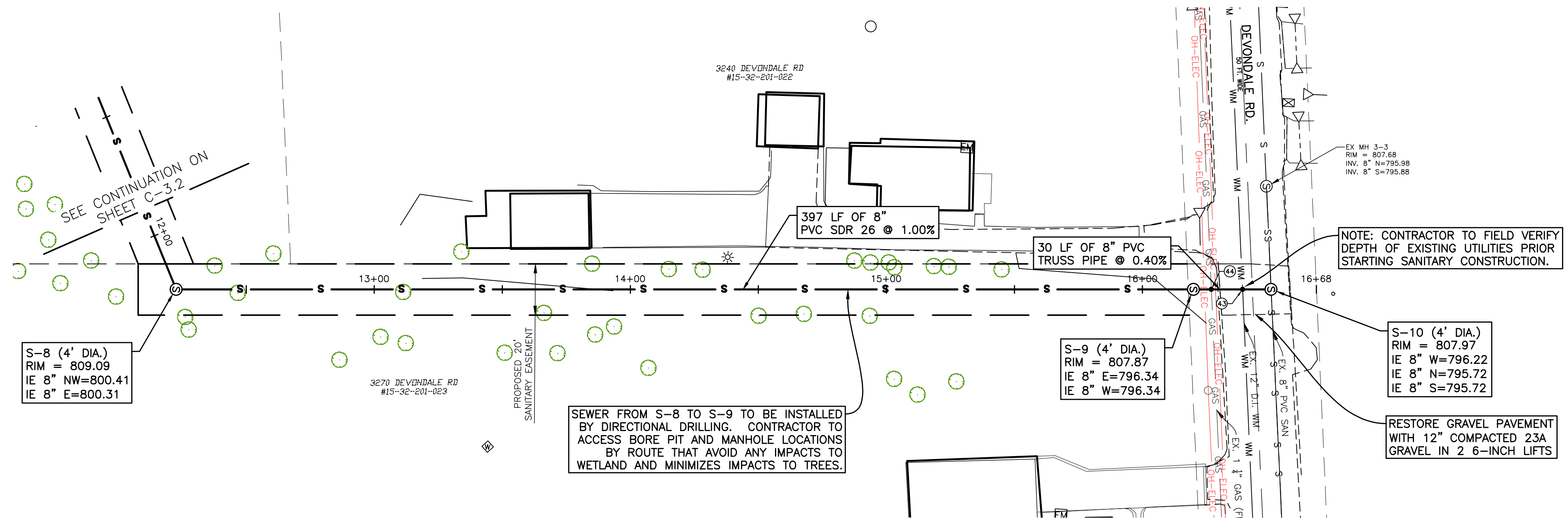
ORIGINAL ISSUE DATE:  
 05/19/2022  
 PROJECT NO: 22-051  
 SCALE: 1" = 30'  
 0 1/2" = 1"

FIELD: REICHERT  
 DRAWN BY: MN  
 DESIGN BY: AP  
 CHECK BY: AP

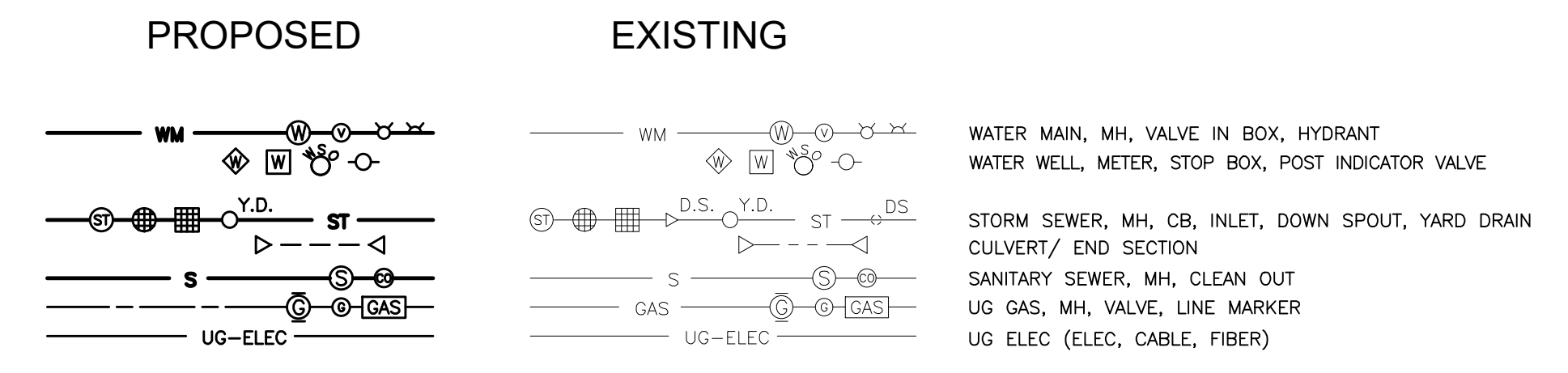
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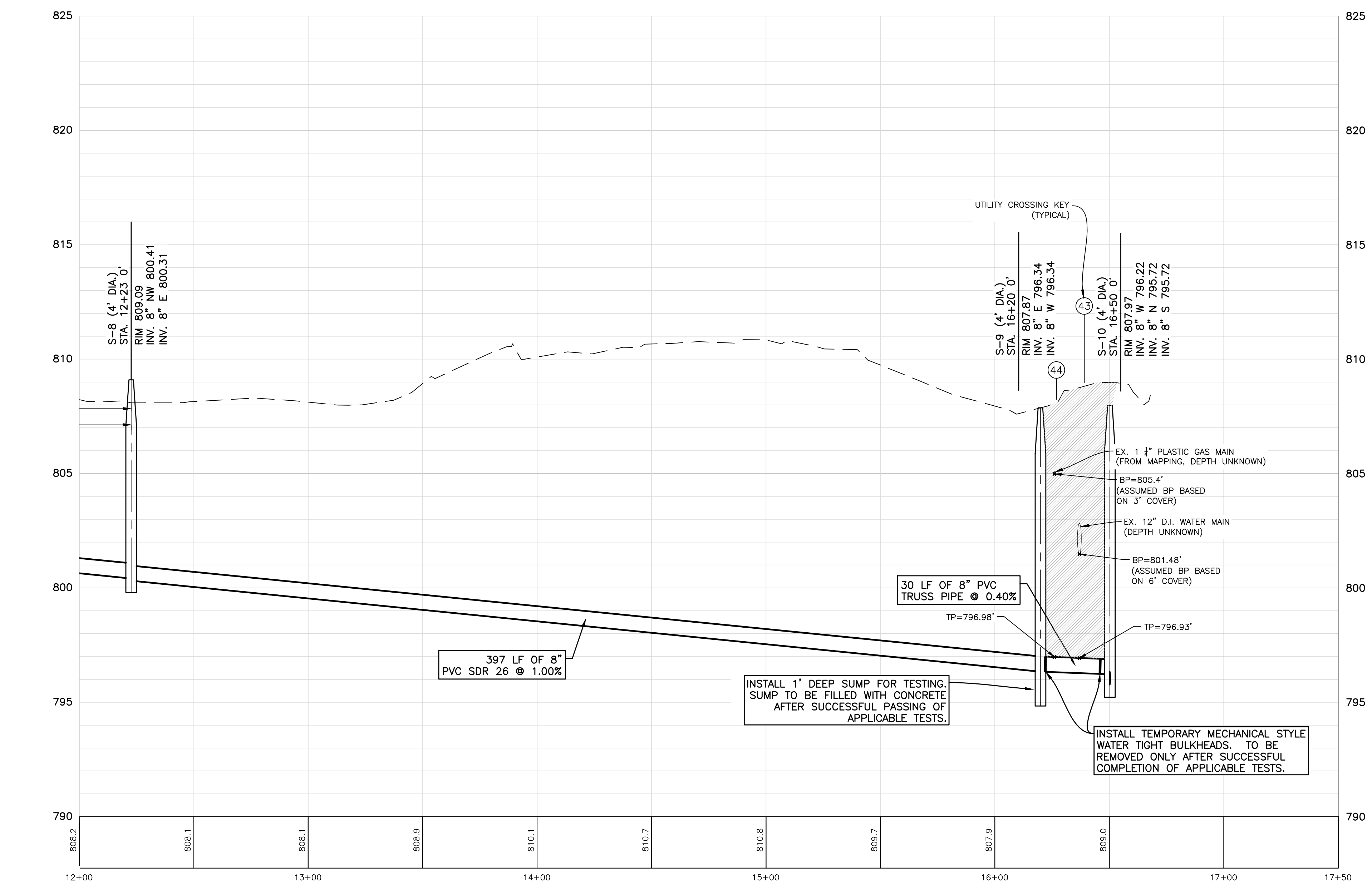




UTILITY LEGEND



- DEVONDALE ROW NOTES**
- STRUCTURE S-10 TO BE INSTALLED WITH RIM ELEVATION 1' BELOW GRADE AND BACKFILLED WITH COMPACTED 23A AGGREGATE.
  - MAINTAIN 1 LANE OF TRAFFIC DURING CONSTRUCTION OF PROPOSED SANITARY SEWER IN DEVONDALE ROAD IF AT ALL POSSIBLE. THE DEPARTMENT OF PUBLIC SERVICES/ENGINEERING INSPECTOR WILL MAKE THE DETERMINATION IF IT IS POSSIBLE IN THE FIELD. CONTACT DPS/ENGINEERING AT 248-656-4685.



OFFSITE - SANITARY SEWER STA. 12+22 TO STA 17+00

PROFILE SCALE  
HORIZ: 1"=30'  
VERT: 1"=3'

SANITARY SEWER NOTES

- SANITARY "MH" SHALL HAVE EJIW 1040 FRAME WITH TYPE A COVER.
- ALL SEWER LEADS SHALL BE PVC SDR 23.5 PIPE.
- ALL SEWER MAIN SHALL BE PVC TRUSS PIPE (200 PSI) FOR OPEN CUT AND PVC SDR 26 PIPE FOR DIRECTIONAL BORE.

SANITARY SEWER QUANTITIES

QTY	UNIT	ITEM
30	LF	8" PVC TRUSS PIPE
397	LF	8" PVC SDR 26 PIPE
3	EA	4' MANHOLE
1	EA	4' MANHOLE TAP

CROSSING SCHEDULE

NOTE: MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES. PROPOSED GAS MAIN IS ASSUMED TO BE 3" AND INSTALLED WITH 4 FEET OF COVER.

UTILITY CROSSING KEY

ABBREVIATIONS:  
IE = INVERT ELEVATION  
TP = TOP OF PIPE  
BP = BOTTOM OF PIPE

43	EX. 12" WATER MAIN BP	= ~801.48
	8" SANITARY SEWER TP	= 796.93
44	EX. GAS MAIN BP	= ~805.4
	8" SANITARY SEWER TP	= 796.98

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KEVIN C. McDEVITT  
ENGINEER  
NO. 6201043260

*Kevin C. McDevitt*

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CLIENT :

**AUBURN ANGARA OAKS, LLC**

14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**SANITARY SEWER PLAN AND PROFILE**

**STA 12+22 TO 16+49 (OFFSITE TO SOUTH)**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

DATE	DESCRIPTION
09/04/2024 <td>REVISED PRELIMINARY SITE PLAN TO CITY</td>	REVISED PRELIMINARY SITE PLAN TO CITY
11/29/2024 <td>CONSTRUCTION PLAN SUBMITTAL</td>	CONSTRUCTION PLAN SUBMITTAL
12/19/2024 <td>ADDED WETLAND CONSIDERATION</td>	ADDED WETLAND CONSIDERATION
04/02/2025 <td>CONSTRUCTION PLAN RESUBMITTAL #2</td>	CONSTRUCTION PLAN RESUBMITTAL #2
05/29/2025 <td>CONSTRUCTION PLAN RESUBMITTAL #3</td>	CONSTRUCTION PLAN RESUBMITTAL #3
07/07/2025 <td>WATER AND SANITARY PERMIT PLANS</td>	WATER AND SANITARY PERMIT PLANS
08/01/2025 <td>CONSTRUCTION PLAN RESUBMITTAL #4</td>	CONSTRUCTION PLAN RESUBMITTAL #4

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

SCALE: 1" = 30'  
0 1/2" 1"

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
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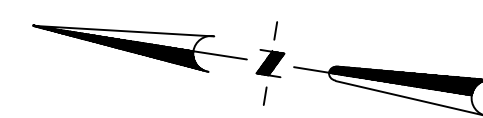
**C-3.3**

NOT FOR CONSTRUCTION









### UTILITY LEGEND

PROPOSED	EXISTING	
		WATER MAIN, MH, VALVE IN BOX, HYDRANT
		WATER WELL, METER, STOP BOX, POST INDICATOR VALVE
		STORM SEWER, MH, CB, INLET, DOWN SPOUT, YARD DRAIN
		CULVERT/ END SECTION
		SANITARY SEWER, MH, CLEAN OUT
		UG GAS, MH, VALVE, LINE MARKER
		UG ELEC (ELEC. CABLE, FIBER)

### WATER NOTES

- WATER MAIN TO BE INSTALLED WITH 6' EARTH COVER PER CITY OF ROCHESTER HILLS DESIGN STANDARDS.
- PROPOSED MULTIFAMILY BUILDINGS A THROUGH E ARE TO HAVE SPRINKLED FIRE SUPPRESSION. SIAMISE CONNECTION TO BE INSTALLED NEAR MAIN ENTRANCE ON SIDE FACING STREET.
- WATER MAIN TO BE CONSTRUCTED BY EXTENDING THE EXISTING 8 INCH WATER LINE CROSSING AUBURN ROAD TO THE EXISTING HYDRANT AFTER REMOVING THE HYDRANT AND CLOSING THE 8" VALVE IN AUBURN ROAD.  
  
CONTRACTOR SHALL PROVIDE BRACING WITHIN THE EXISTING GATE WELL TO ENSURE THAT THE GATE VALVE CAN NOT SEPARATE UPON REMOVAL OF THE EXISTING HYDRANT TEE.  
  
WATER VALVE IS TO REMAIN CLOSED UNTIL NEW WATER MAIN HAS BEEN ACCEPTED BY THE CITY OF ROCHESTER HILLS AFTER PASSING ALL PRESSURE AND BACTERIOLOGICAL TESTING.
- EXISTING HYDRANT REMOVED IN AUBURN ROAD SHALL NOT BE USED ON THE PROJECT AND SHALL BE RETURNED TO CITY OF ROCHESTER HILLS DPS.

### WATER MAIN QUANTITIES

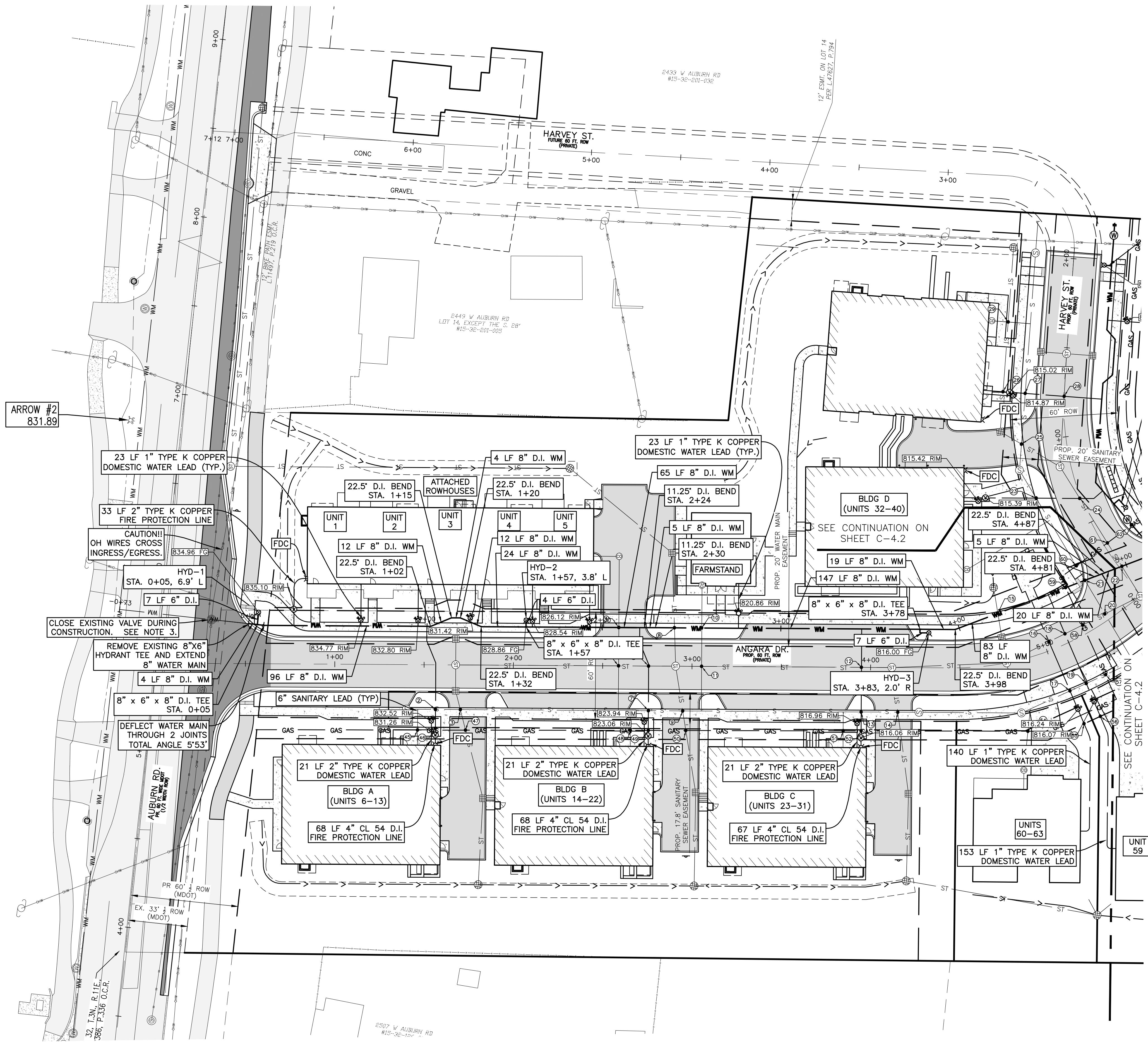
QTY	UNIT	ITEM
493	LF	8" DI CL 54 WATER MAIN
18	LF	6" DI CL 54 WATER MAIN
382	LF	4" DI CL 54 PRIVATE FIRE SUPPRESSION
117	LF	2" TYPE K COPPER WATER SERVICE
408	LF	1" TYPE K COPPER WATER SERVICE
3	EA	STANDARD HYDRANT ASSEMBLY

### CROSSING SCHEDULE

NOTE: MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES. PROPOSED GAS MAIN IS ASSUMED TO BE 3" AND INSTALLED WITH 4 FEET OF COVER.

- UTILITY CROSSING KEY
- ABBREVIATIONS:  
IE = INVERT ELEVATION  
TP = TOP OF PIPE  
BP = BOTTOM OF PIPE

2	4" WATER LEAD / FIRE SUPPRESSION BP	= 825.99
4	8" SANITARY SEWER TP	= 819.74
4	8" WATER MAIN BP	= 817.92
6	6" SANITARY LEAD TP	= 816.14
6	12" STORM SEWER BP	= 818.89
4	4" WATER LEAD / FIRE SUPPRESSION TP	= 817.39
7	4" WATER LEAD / FIRE SUPPRESSION BP	= 817.76
8	8" SANITARY SEWER TP	= 814.39
8	12" STORM SEWER BP	= 816.73
8	8" WATER MAIN TP	= 815.17
10	6" SANITARY LEAD BP	= 815.83
8	8" WATER MAIN TP	= 814.33
12	12" STORM SEWER BP	= 812.23
4	4" WATER LEAD / FIRE SUPPRESSION TP	= 810.73
13	4" WATER LEAD / FIRE SUPPRESSION BP	= 810.56
8	8" SANITARY SEWER TP	= 809.03
15	12" STORM SEWER BP	= 810.90
8	8" WATER MAIN TP	= 809.00
16	24" STORM SEWER BP	= 808.97
1	1" WATER LEAD TP	= 807.47
17	1" WATER LEAD BP	= 809.72
8	8" SANITARY SEWER TP	= 807.09
18	24" STORM SEWER BP	= 808.95
1	1" WATER LEAD TP	= 807.45
19	1" WATER LEAD BP	= 809.84
8	8" SANITARY SEWER TP	= 807.05
21	8" WATER MAIN BP	= 808.84
8	8" SANITARY SEWER TP	= 807.14
46	GAS MAIN BP	~ 827.36
4	4" FIRE SUPPRESSION TP	= 825.61
1	1" WATER LEAD TP	= 819.11
46	GAS MAIN BP	~ 819.11
4	4" FIRE SUPPRESSION TP	= 817.36
52	GAS MAIN BP	~ 812.14
4	4" FIRE SUPPRESSION TP	= 810.39
56	GAS MAIN BP	~ 812.00
1	1" WATER LEAD TP	= 810.25
56	GAS MAIN BP	~ 812.30
1	1" WATER LEAD TP	= 810.55
59	GAS MAIN BP	~ 811.53
8	8" WATER MAIN TP	= 809.38



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CLIENT :

**AUBURN ANGARA OAKS, LLC**  
14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**WATER MAIN PLAN - NORTH**  
AUBURN ANGARA OAKS  
PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/29/2024
ADDED WELAND CONS. EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #2	04/07/2025
CONSTRUCTION PLAN RESUBMITTAL #3	05/29/2025
WATER AND SANITARY PERMIT PLANS	07/07/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/29/2025

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

SCALE: 1" = 30'

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**C-4.1**

NOT FOR CONSTRUCTION

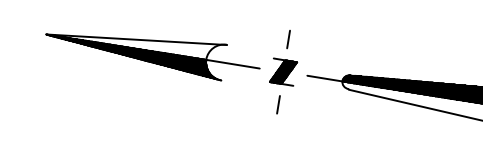
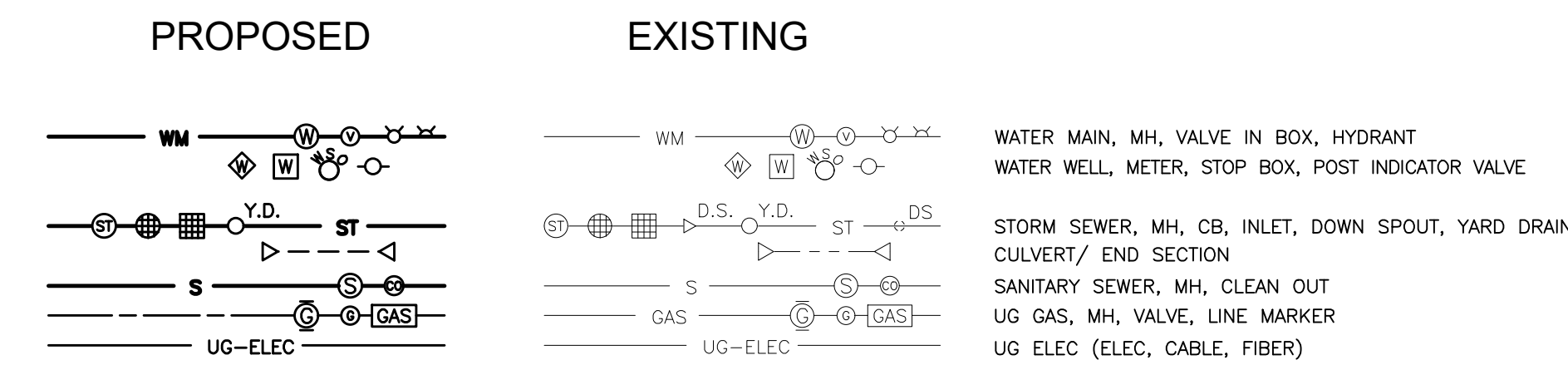




### WATER NOTES

1. WATER MAIN TO BE INSTALLED WITH 6' EARTH COVER PER CITY OF ROCHESTER HILLS DESIGN STANDARDS.
2. PROPOSED MULTIFAMILY BUILDINGS A THROUGH E ARE TO HAVE SPRINKLED FIRE SUPPRESSION. SIAMESE CONNECTION TO BE INSTALLED NEAR MAIN ENTRANCE ON SIDE FACING STREET.
3. WATER MAIN TO BE CONSTRUCTED BY EXTENDING THE EXISTING 8 INCH WATER LINE CROSSING AUBURN ROAD TO THE EXISTING HYDRANT AFTER REMOVING THE HYDRANT AND CLOSING THE 8" VALVE IN AUBURN ROAD.  
  
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4. EXISTING HYDRANT REMOVED IN AUBURN ROAD SHALL NOT BE USED ON THE PROJECT AND SHALL BE RETURNED TO CITY OF ROCHESTER HILLS DPS.

### UTILITY LEGEND



### WATER MAIN QUANTITIES

QTY	UNIT	ITEM
680	LF	8" DI CL 54 WATER MAIN
19	LF	6" DI CL 54 WATER MAIN
66	LF	4" DI CL 54 PRIVATE FIRE SUPPRESSION
21	LF	2" TYPE K COPPER WATER SERVICE
502	LF	1" TYPE K COPPER WATER SERVICE
3	EA	8" GATE VALVE IN WELL
1	EA	8" D.I. CAP
4	EA	STANDARD HYDRANT ASSEMBLY

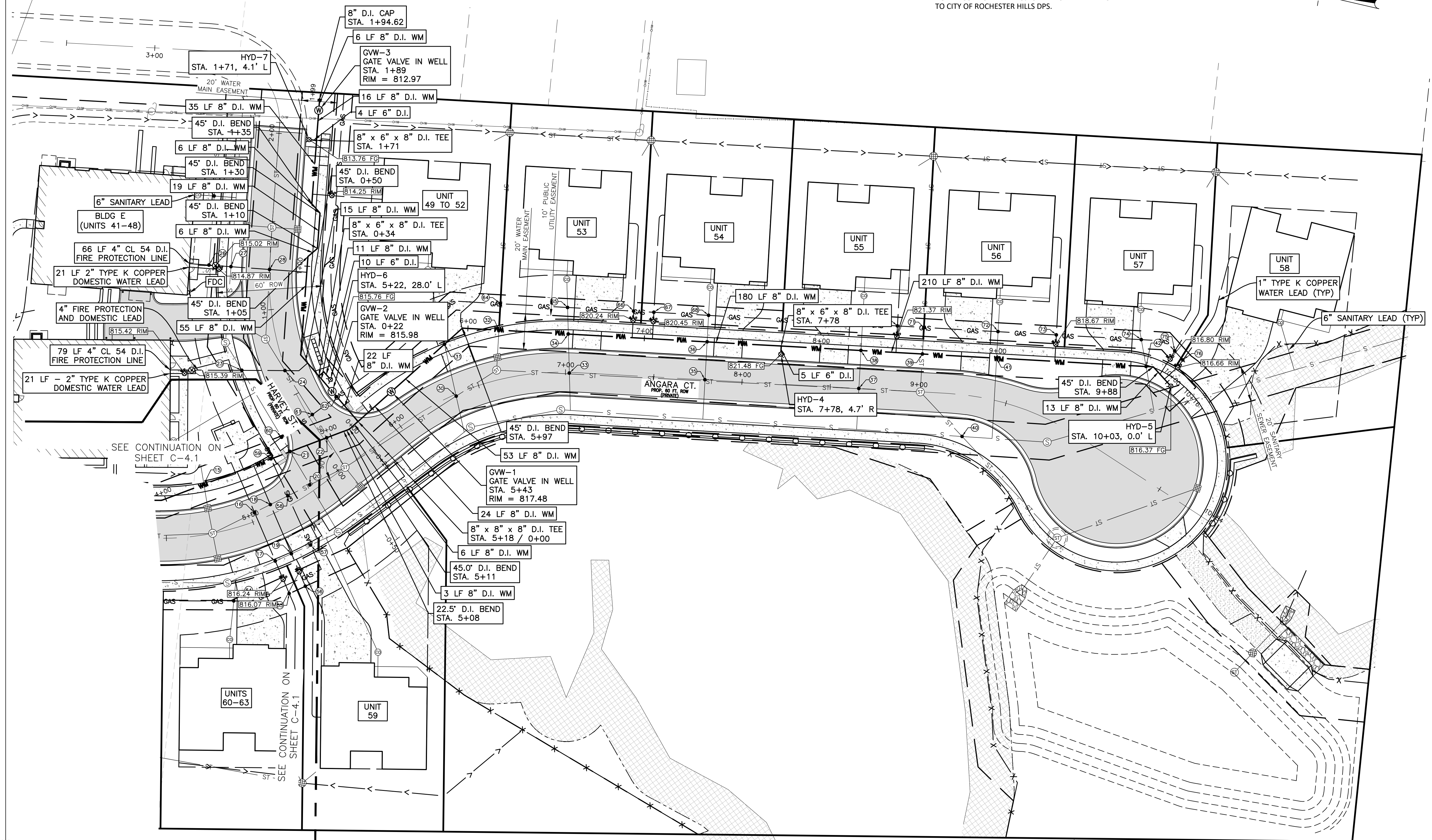
### CROSSING SCHEDULE

NOTE: MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES. PROPOSED GAS MAIN IS ASSUMED TO BE 3' AND INSTALLED WITH 4 FEET OF COVER.

UTILITY CROSSING KEY

ABBREVIATIONS:  
IE = INVERT ELEVATION  
TP = TOP OF PIPE  
BP = BOTTOM OF PIPE

22	18" STORM SEWER BP	= 808.53
	8" WATER MAIN TP	= 807.03
23	4" WATER LEAD/FIRE SUPPRESSION BP	= 809.02
	8" SANITARY SEWER TP	= 807.35
24	18" STORM SEWER BP	= 808.60
	4" WATER LEAD/FIRE SUPPRESSION TP	= 807.10
26	12" STORM SEWER BP	= 809.48
	4" FIRE SUPPRESSION TP	= 807.98
27	8" SANITARY SEWER BP	= 806.93
	4" WATER LEAD/FIRE SUPPRESSION TP	= 805.43
28	18" STORM SEWER BP	= 808.73
	4" WATER LEAD/FIRE SUPPRESSION TP	= 807.23
31	8" WATER MAIN BP	= 810.99
	6" SANITARY LEAD TP	= 806.91
32	8" WATER MAIN BP	= 811.74
	12" STORM SEWER TP	= 809.83
34	8" WATER MAIN BP	= 812.59
	6" SANITARY LEAD TP	= 806.82
36	8" WATER MAIN BP	= 814.05
	6" SANITARY LEAD TP	= 806.63
38	8" WATER MAIN BP	= 814.05
	6" SANITARY LEAD TP	= 806.56
39	8" WATER MAIN BP	= 813.41
	12" STORM SEWER TP	= 809.60
41	8" WATER MAIN BP	= 812.47
	6" SANITARY LEAD TP	= 809.67
42	8" WATER MAIN BP	= 810.03
	6" SANITARY SEWER TP	= 808.04
62	GAS MAIN BP	~ 811.95
	8" WATER MAIN TP	= 810.38
66	GAS MAIN BP	~ 816.04
	1" WATER LEAD TP	= 814.29
67	GAS MAIN BP	~ 816.30
	1" WATER LEAD TP	= 814.55
70	GAS MAIN BP	~ 817.44
	1" WATER LEAD TP	= 815.69
73	GAS MAIN BP	~ 814.47
	1" WATER LEAD TP	= 812.72
75	GAS MAIN BP	~ 812.43
	1" WATER LEAD TP	= 810.68
76	GAS MAIN BP	~ 812.59
	1" WATER LEAD TP	= 810.84



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ENGINEER  
NO. 6201043260

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CLIENT :

**AUBURN ANGARA OAKS, LLC**  
14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**WATER MAIN PLAN - SOUTH**  
AUBURN ANGARA OAKS  
PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

DATE	DESCRIPTION
09/04/2024	REVISED PRELIMINARY SITE PLAN TO CITY
11/20/2024	CONSTRUCTION PLAN SUBMITTAL
12/19/2024	ADDED WETLAND CONTS. EASEMENT
04/02/2025	CONSTRUCTION PLAN RESUBMITTAL #1
05/29/2025	CONSTRUCTION PLAN RESUBMITTAL #2
07/07/2025	WATER AND SANITARY PERMIT PLANS
08/01/2025	CONSTRUCTION PLAN RESUBMITTAL #3
08/26/2025	CONSTRUCTION PLAN RESUBMITTAL #4

ORIGINAL ISSUE DATE: 05/19/2022

PROJECT NO: 22-051

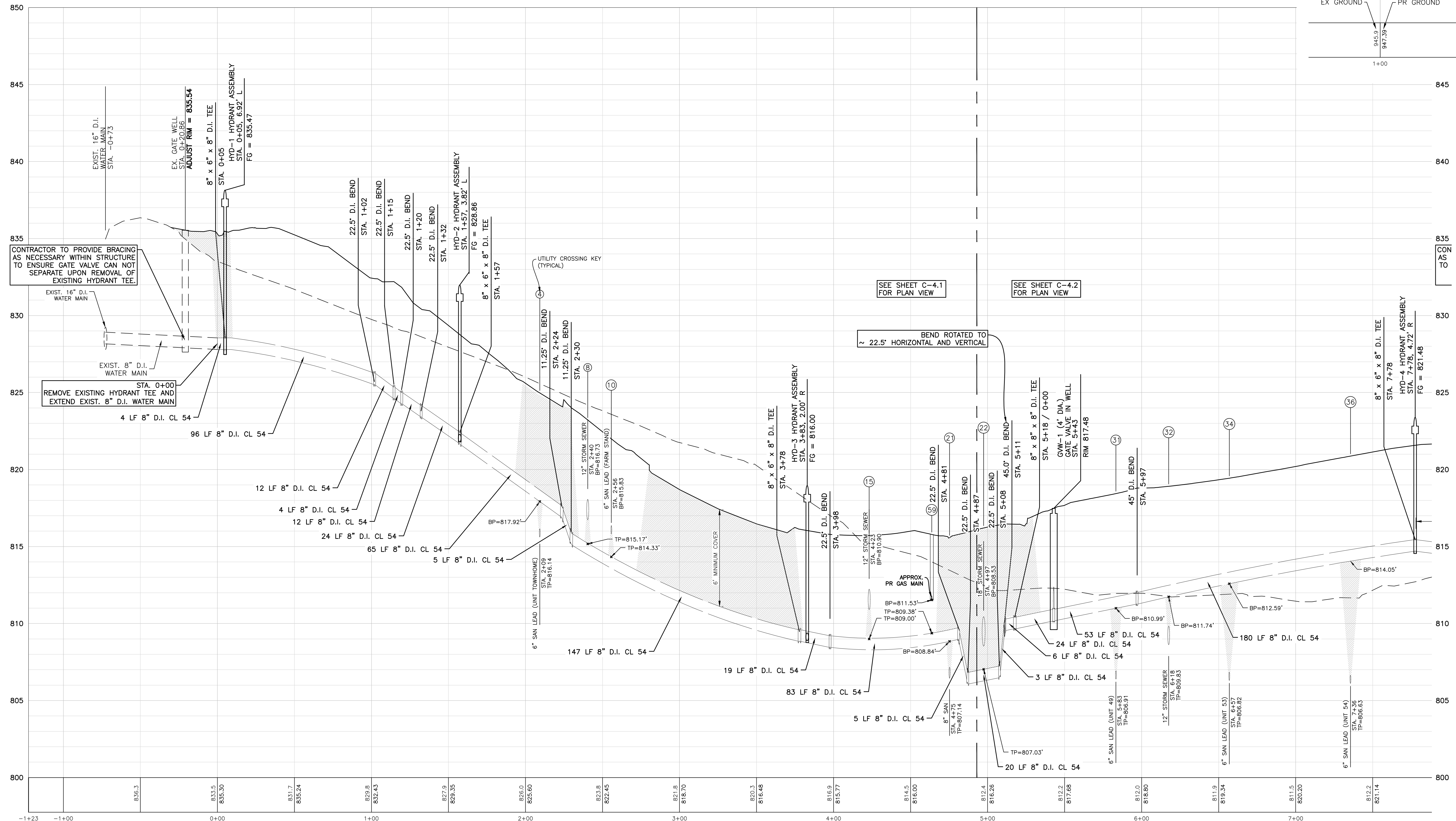
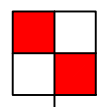
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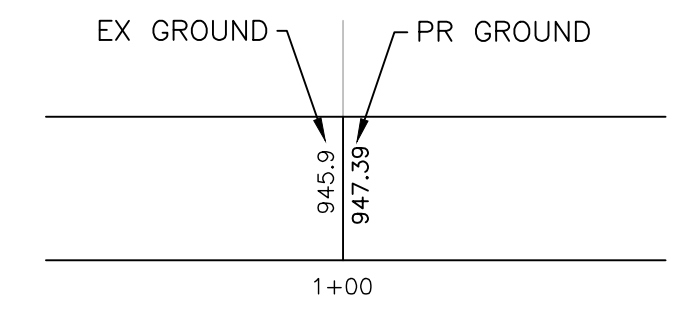
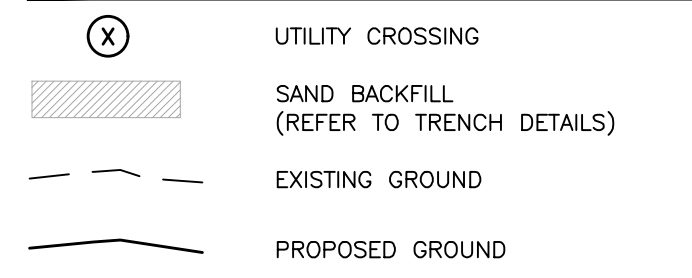




**NOTES**

- SAND BACKFILL AND BEDDING TO BE MDOT CL II.
- MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

**PROFILE LEGEND**



ANGARA DRIVE - WATER MAIN 0+00 TO 8+50

PROFILE SCALE  
HORIZ: 1"=30'  
VERT: 1"=3'

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CLIENT :

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14496 N SHELDON RD  
SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**WATER MAIN PROFILES**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
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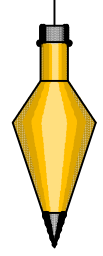
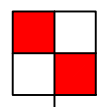
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DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**C-4.3**

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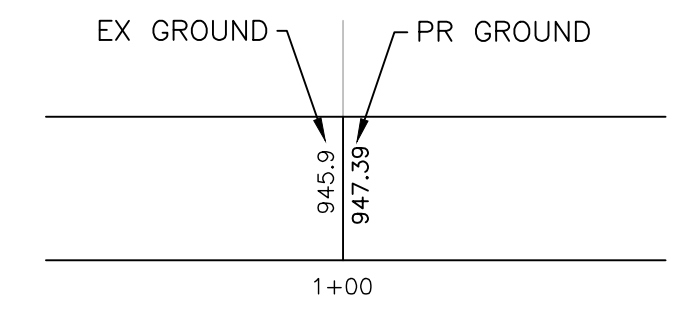
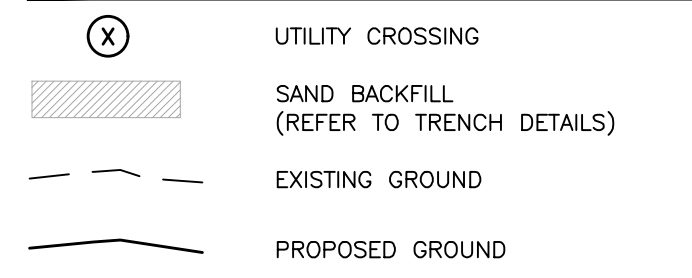




### NOTES

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- MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

### PROFILE LEGEND



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BRUCE MICHAEL  
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**WATER MAIN PROFILES**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
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CONSTRUCTION PLAN SUBMITTAL	11/29/2024
ADDED WETLAND CONTS. EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #1	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #2	05/29/2025
WATER AND SANITARY PERMIT PLANS	07/07/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/29/2025

ORIGINAL ISSUE DATE:  
05/19/2022

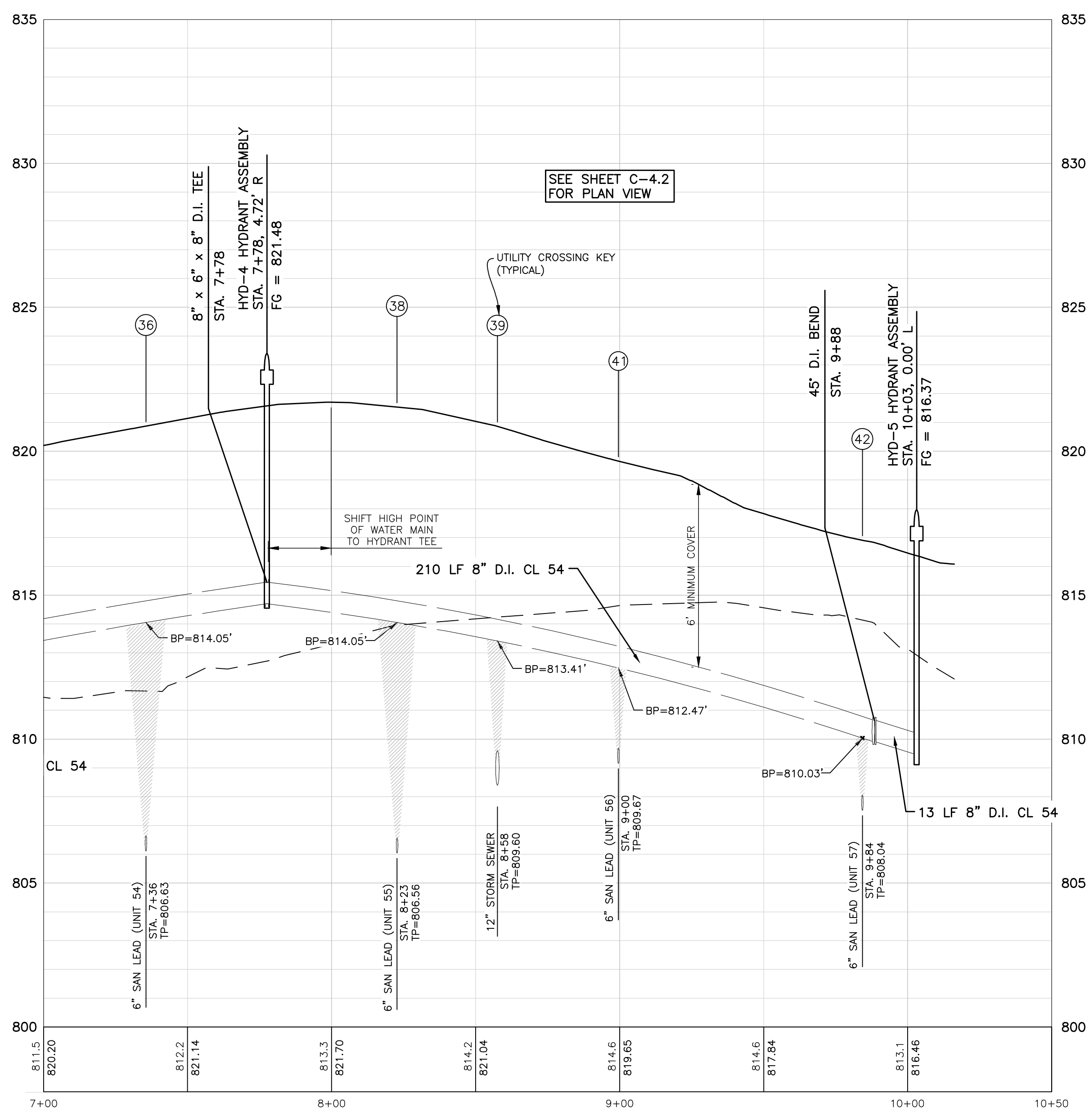
PROJECT NO: 22-051

SCALE: SEE ABOVE

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

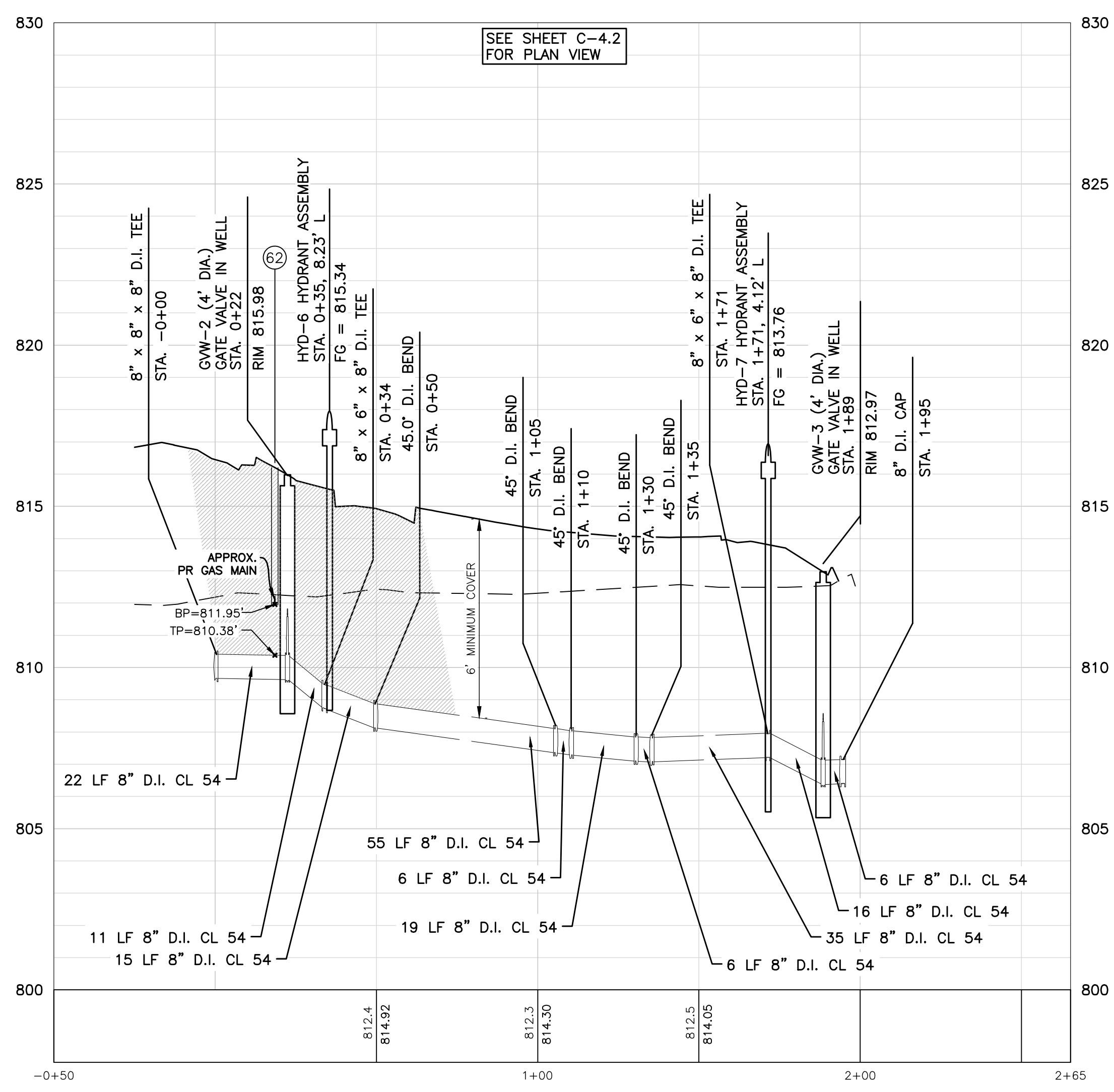
**C-4.4**

NOT FOR CONSTRUCTION



ANGARA DRIVE - WATER MAIN STA. 8+50 TO END

PROFILE SCALE  
HORIZ: 1"=30'  
VERT: 1"=3'



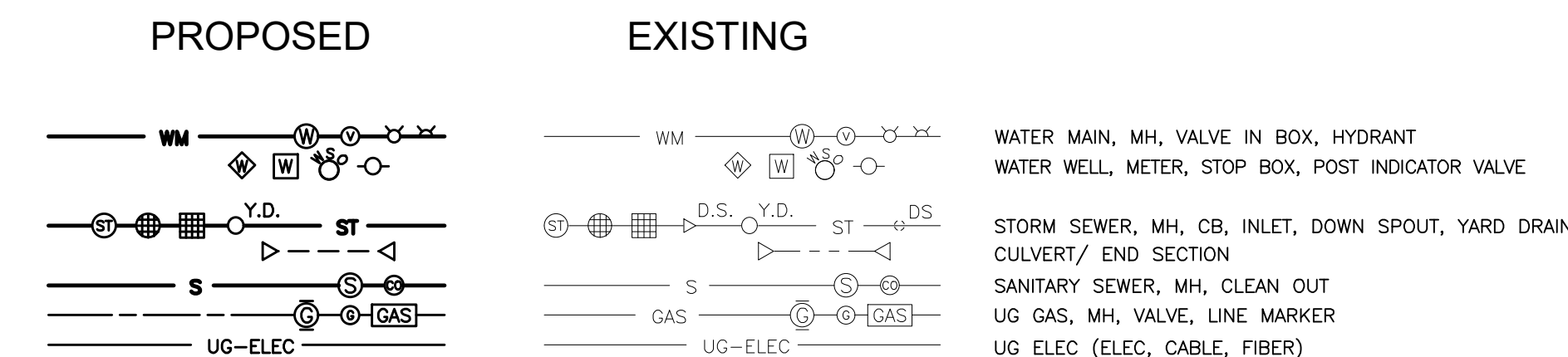
HARVEY STREET - WATER MAIN STA. 0+00 TO END

PROFILE SCALE  
HORIZ: 1"=30'  
VERT: 1"=3'





### UTILITY LEGEND



### STORM SEWER NOTES

- "IN" and "CB" STRUCTURES IN SWALES / YARDS SHALL HAVE EJIW 1040 FRAME WITH TYPE N OVAL GRATE.
- "IN" and "CB" STRUCTURES IN PAVEMENT (NOT IN CURB OR ADJACENT TO E CURB) SHALL HAVE EJIW 5105 WITH TYPE M1 GRATE.
- CURB "IN" and "CB" STRUCTURES SHALL HAVE EJIW 7056 FRAME WITH TYPE M1 GRATE. IF LONGITUDINAL SLOPE IS OVER 4%, STRUCTURES SHALL UTILIZE A TYPE M4 "VANED" GRATE.
- STORM "MH" STRUCTURES SHALL HAVE EJIW 1040 FRAME WITH A TYPE A VENTED COVER.
- ALL ROOF AREAS SHALL BE DRAINED TO STORM SEWERS USING SCHEDULE 40 PVC DOWNSPOUT LEADS. LEADS SHALL BE COORDINATED WITH ARCHITECTURAL PLANS.
- A STORM WATER MANAGEMENT OPERATION AND MAINTENANCE AGREEMENT FOR THE ON-SITE STORM SEWER SYSTEM MUST BE EXECUTED AND RECORDED PRIOR TO CONSTRUCTION PLAN APPROVAL.

### STORM SEWER QUANTITIES

QTY	UNIT	ITEM
1480	LF	12" CL IV RCP
64	LF	18" CL IV RCP
84	LF	24" CL IV RCP
3	EA	2" INLET
16	EA	4' CATCH BASIN
5	EA	4' MANHOLE

### CROSSING SCHEDULE

NOTE: MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES. PROPOSED GAS MAIN IS ASSUMED TO BE 3" AND INSTALLED WITH 4 FEET OF COVER.

- UTILITY CROSSING KEY
- ABBREVIATIONS:  
IE = INVERT ELEVATION  
TP = TOP OF PIPE  
BP = BOTTOM OF PIPE

1	12" STORM SEWER BP	= 825.28
2	8" SANITARY MAIN TP	= 819.07
3	12" STORM SEWER BP	= 819.70
4	6" SANITARY LEAD TP	= 815.73
5	12" STORM SEWER BP	= 818.89
6	4" WATER/FIRE SUPPRESSION LEAD TP	= 817.39
7	12" STORM SEWER BP	= 816.73
8	8" WATER MAIN TP	= 815.17
9	12" STORM SEWER BP	= 817.21
10	8" SANITARY SEWER TP	= 813.48
11	12" STORM SEWER BP	= 815.79
12	6" SANITARY LEAD TP	= 814.87
13	12" STORM SEWER BP	= 812.23
14	4" WATER/FIRE SUPPRESSION LEAD TP	= 810.73
15	12" STORM SEWER BP	= 810.30
16	8" SANITARY SEWER TP	= 808.07
17	12" STORM SEWER BP	= 810.90
18	8" WATER MAIN TP	= 809.00
19	24" STORM SEWER BP	= 808.97
20	1" WATER LEAD TP	= 807.47
21	24" STORM SEWER BP	= 808.95
22	1" WATER LEAD TP	= 807.45
23	24" STORM SEWER BP	= 808.90
24	8" SANITARY SEWER TP	= 807.04
25	12" STORM SEWER BP	= 809.19
26	8" SANITARY SEWER TP	= 807.49
27	12" STORM SEWER BP	= 809.48
28	4" FIRE SUPPRESSION TP	= 807.98
29	1" WATER LEAD TP	= 807.98
30	12" STORM SEWER BP	= 809.61
31	6" SANITARY LEAD TP	= 808.11
32	GAS MAIN BP	~ 828.12
33	12" STORM SEWER TP	= 826.53
34	GAS MAIN BP	~ 820.08
35	12" STORM SEWER TP	= 818.58
36	GAS MAIN BP	~ 813.24
37	12" STORM SEWER TP	= 811.74
38	GAS MAIN BP	~ 812.92
39	24" STORM SEWER TP	= 811.42

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PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**STORM SEWER PLAN - NORTH**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/20/2024
ADDED WELAND CONS. EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #1	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #2	05/29/2025
CONSTRUCTION PLAN RESUBMITTAL #3	07/07/2025
WATER AND SANITARY PERMIT PLANS	08/01/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/26/2025

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

SCALE: 1" = 30'

0 1/2" 1"

FIELD: REICHERT  
DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**C-6.1**

NOT FOR CONSTRUCTION

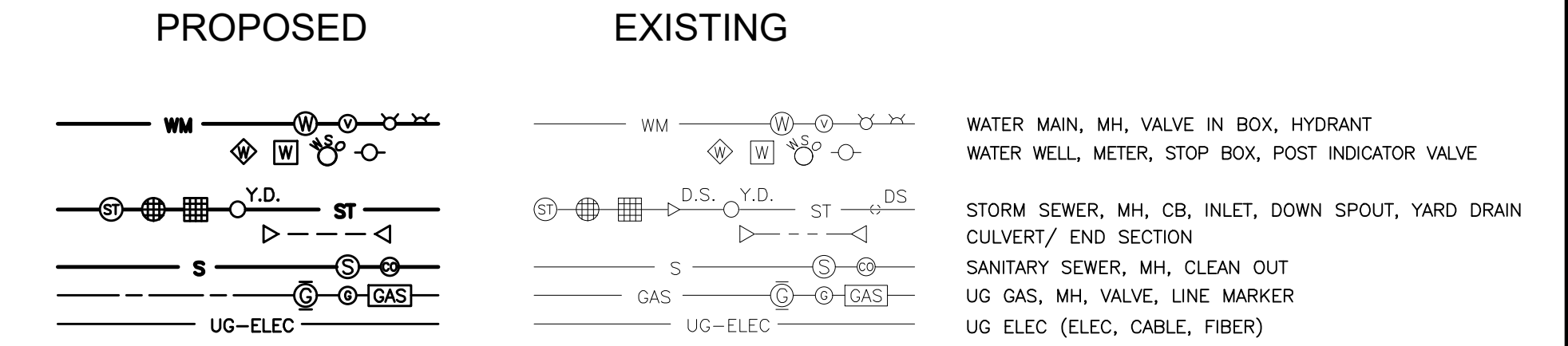




### STORM SEWER NOTES

- "IN" & "CB" STRUCTURES IN SWALES / YARDS SHALL HAVE EI/W 1040 FRAME WITH TYPE N OVAL GRATE.
- "IN" & "CB" STRUCTURES IN PAVEMENT (NOT IN CURB OR ADJACENT TO E CURB) SHALL HAVE EI/W 5105 WITH TYPE M1 GRATE.
- CURB "IN" & "CB" STRUCTURES SHALL HAVE EI/W 7045 FRAME WITH TYPE M1 GRATE. IF LONGITUDINAL SLOPE IS OVER 4%, STRUCTURES SHALL UTILIZE A TYPE M4 'VANED' GRATE.
- STORM "MH" STRUCTURES SHALL HAVE EI/W 1040 FRAME WITH A TYPE A VENTED COVER.
- ALL ROOF AREAS SHALL BE DRAINED TO STORM SEWERS USING SCHEDULE 40 PVC DOWNSPOUT LEADS. LEADS SHALL BE COORDINATED WITH ARCHITECTURAL PLANS.
- A STORM WATER MANAGEMENT OPERATION AND MAINTENANCE AGREEMENT FOR THE ON-SITE STORM SEWER SYSTEM MUST BE EXECUTED AND RECORDED PRIOR TO CONSTRUCTION PLAN APPROVAL.

### UTILITY LEGEND



### STORM SEWER QUANTITIES

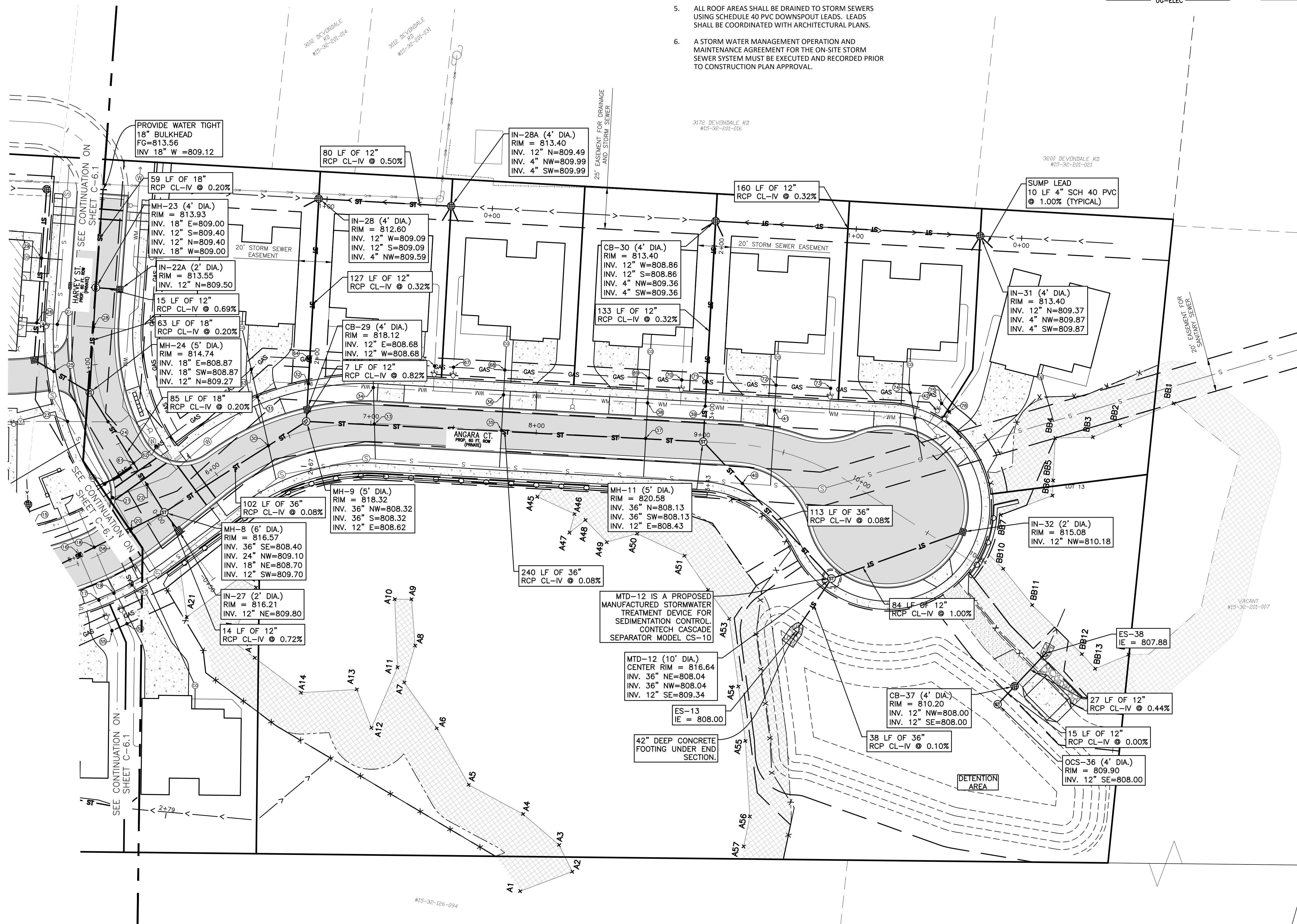
QTY	UNIT	ITEM
15	LF	6" SCH 40 PVC
567	LF	12" CL IV RCP
207	LF	18" CL IV RCP
498	LF	36" CL IV RCP
3	EA	2" INLET
5	EA	4" CATCH BASIN
1	EA	4" MANHOLE
3	EA	5" MANHOLE
1	EA	6" MANHOLE
1	EA	CONTECH CASCADE SEPARATOR CS-10
1	EA	12" FLARED END SECTION
1	EA	36" FLARED END SECTION
1	EA	POND OUTLET STANDPIPE STRUCTURE

### CROSSING SCHEDULE

NOTE: MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES. PROPOSED GAS MAIN IS ASSUMED TO BE 3" AND INSTALLED WITH 4 FEET OF COVER.

UTILITY CROSSING KEY  
 IE = INVERT ELEVATION  
 TP = TOP OF PIPE  
 BP = BOTTOM OF PIPE

22	18" STORM SEWER BP	= 808.53
8"	WATER MAIN TP	= 807.03
24	18" STORM SEWER BP	= 808.60
4"	WATER LEAD / FIRE SUPPRESSION TP	= 807.10
28	12" STORM SEWER BP	= 809.48
4"	WATER LEAD TP	= 807.98
1"	WATER LEAD TP	= 807.98
28	18" STORM SEWER BP	= 808.73
4"	WATER LEAD / FIRE SUPPRESSION TP	= 807.23
30	36" STORM SEWER BP	= 808.13
6"	SANITARY LEAD TP	= 806.62
32	8" WATER MAIN BP	= 811.74
12"	STORM SEWER TP	= 809.83
33	36" STORM SEWER BP	= 808.08
6"	SANITARY LEAD TP	= 806.39
35	36" STORM SEWER BP	= 808.01
6"	SANITARY LEAD TP	= 806.20
37	36" STORM SEWER BP	= 807.95
6"	SANITARY LEAD TP	= 806.13
38	8" WATER MAIN BP	= 813.41
12"	STORM SEWER TP	= 809.60
40	36" STORM SEWER BP	= 807.89
8"	SANITARY SEWER TP	= 805.13
61	GAS MAIN BP	~ 811.98
18"	STORM SEWER TP	= 810.48
64	GAS MAIN BP	~ 814.86
12"	STORM SEWER TP	= 809.88
71	GAS MAIN BP	~ 816.56
12"	STORM SEWER TP	= 809.65



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 BRUCE MICHAEL  
 (248) 703-4653

**STORM SEWER PLAN - SOUTH**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
 CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS / REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/29/2024
ADDED WETLAND CONTS. EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #1	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #2	05/29/2025
WATER AND SANITARY PERMIT PLANS	07/07/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/01/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/26/2025

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

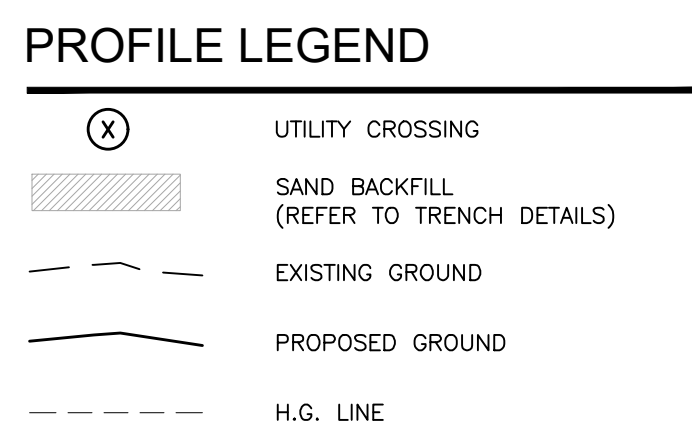
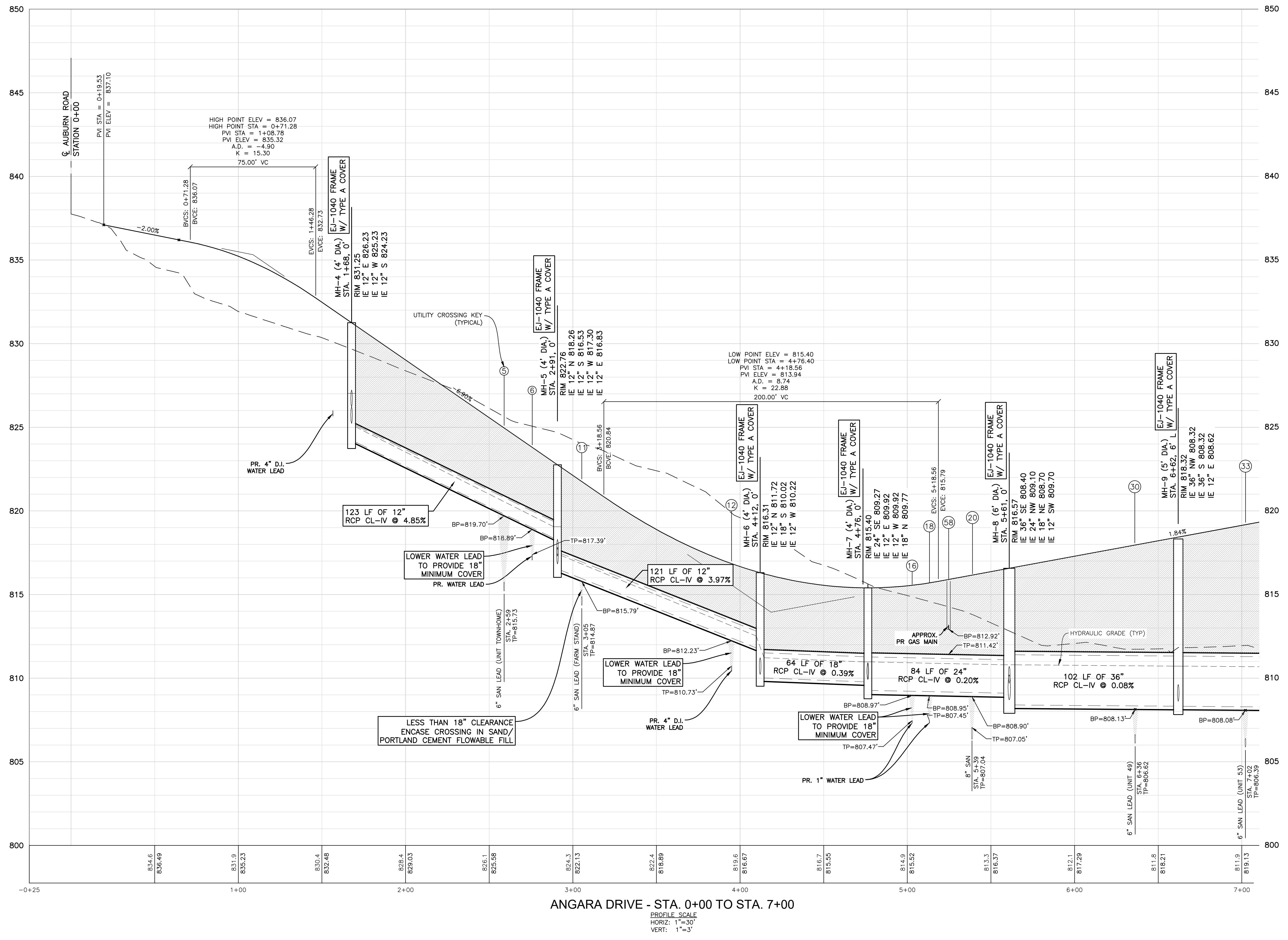
SCALE: 1" = 30'

FIELD: REICHERT  
 DRAWN BY: MN  
 DESIGN BY: KM  
 CHECK BY: AP

**C-6.2**

NOT FOR CONSTRUCTION





- ### NOTES
- SAND BACKFILL AND BEDDING TO BE MDOT CL II.
  - MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

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BRUCE MICHAEL  
(248) 703-4653

**ANGARA DRIVE / STORM SEWER PROFILES**

AUBURN ANGARA OAKS

PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/20/2024
ADDED WETLAND CONSIDERATION	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #2	04/02/2025
CONSTRUCTION PLAN RESUBMITTAL #3	05/29/2025
WATER AND SANITARY PERMIT PLANS	07/07/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/20/2025

ORIGINAL ISSUE DATE:  
05/19/2022

PROJECT NO: 22-051

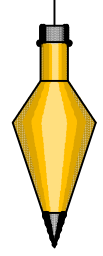
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DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

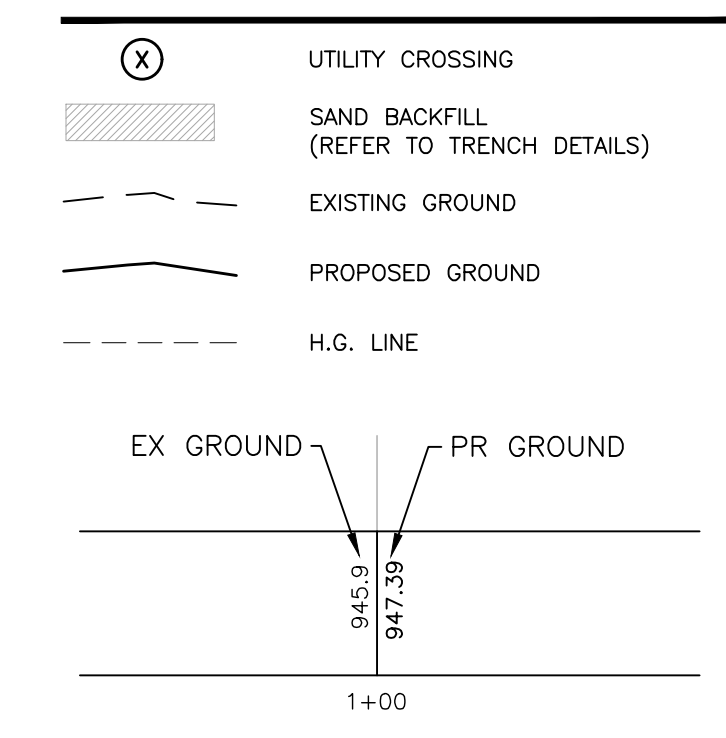
**C-6.3**

NOT FOR CONSTRUCTION





### PROFILE LEGEND



### NOTES

- SAND BACKFILL AND BEDDING TO BE MDOT CL II.
- MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

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SUITE 230  
PLYMOUTH, MI 48170  
BRUCE MICHAEL  
(248) 703-4653

**ANGARA DRIVE / STORM SEWER PROFILES**  
AUBURN ANGARA OAKS  
PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

DATE	DESCRIPTION
09/04/2024 <td>REVISED PRELIMINARY SITE PLAN TO CITY</td>	REVISED PRELIMINARY SITE PLAN TO CITY
11/20/2024 <td>CONSTRUCTION PLAN SUBMITTAL</td>	CONSTRUCTION PLAN SUBMITTAL
12/19/2024 <td>ADDED WETLAND CONTS. EASEMENT</td>	ADDED WETLAND CONTS. EASEMENT
04/02/2025 <td>CONSTRUCTION PLAN RESUBMITTAL #2</td>	CONSTRUCTION PLAN RESUBMITTAL #2
05/29/2025 <td>CONSTRUCTION PLAN RESUBMITTAL #3</td>	CONSTRUCTION PLAN RESUBMITTAL #3
07/07/2025 <td>WATER AND SANITARY PERMIT PLANS</td>	WATER AND SANITARY PERMIT PLANS
08/20/2025 <td>CONSTRUCTION PLAN RESUBMITTAL #4</td>	CONSTRUCTION PLAN RESUBMITTAL #4

ORIGINAL ISSUE DATE: 05/19/2022

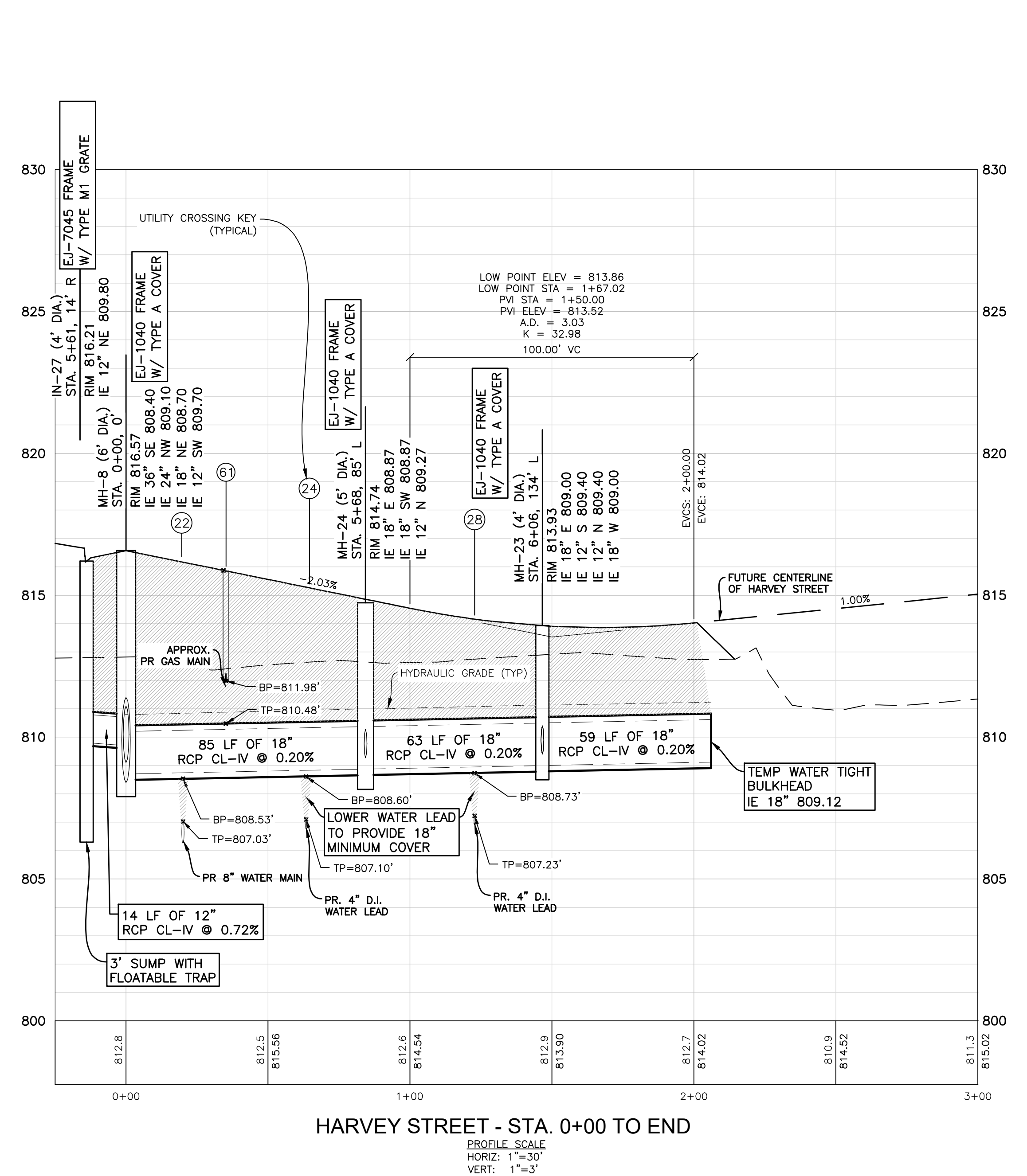
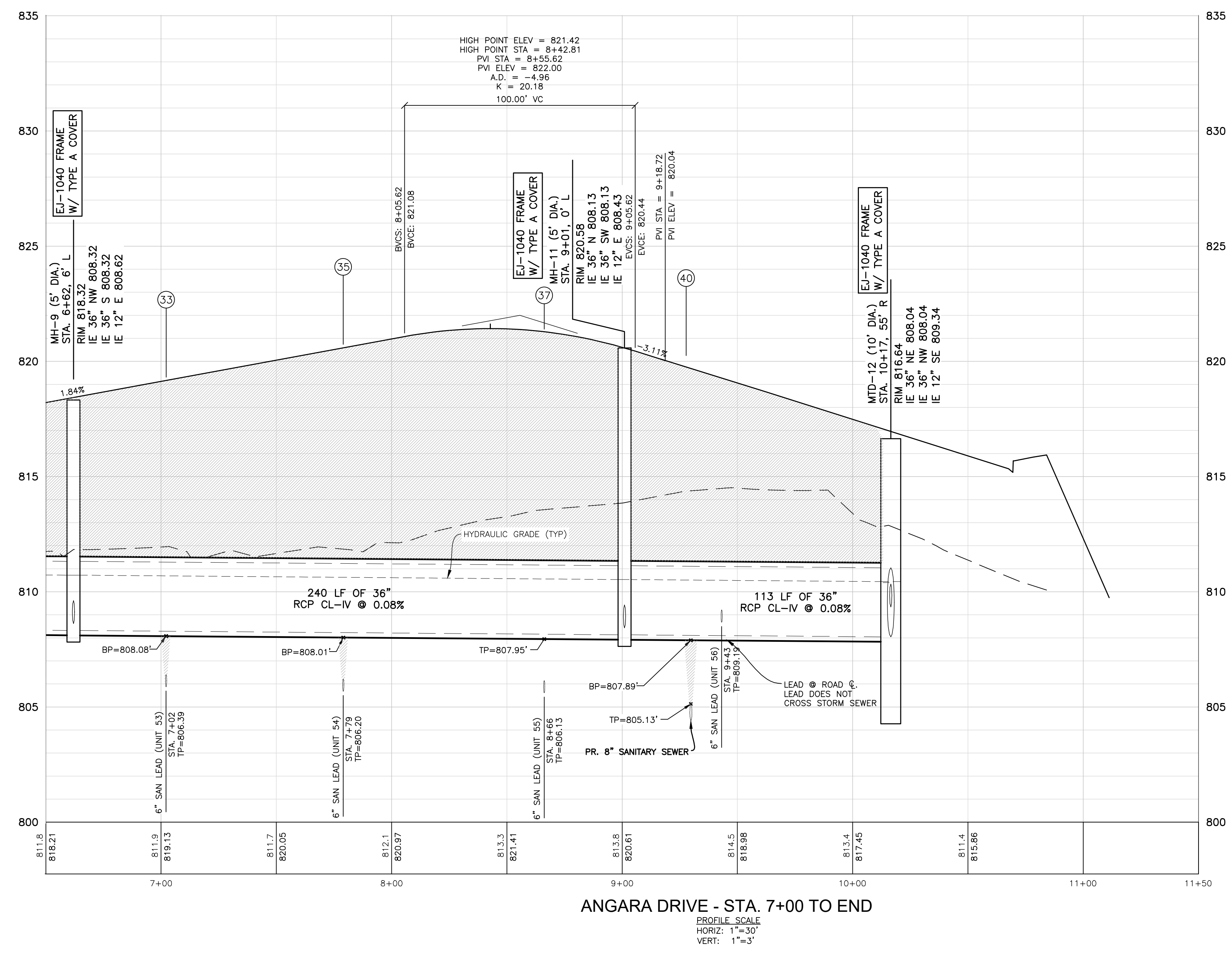
PROJECT NO: 22-051

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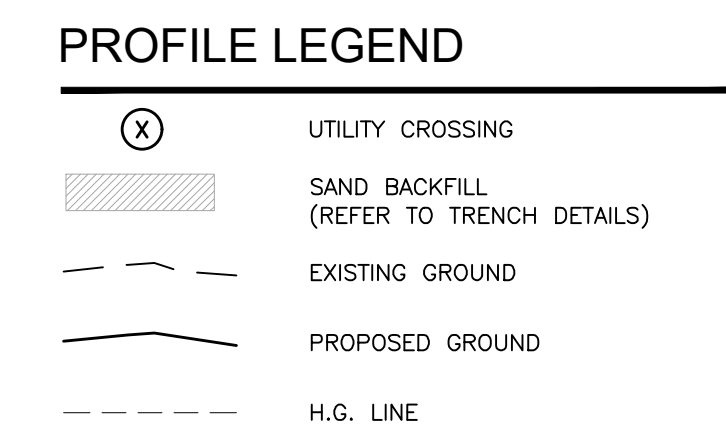
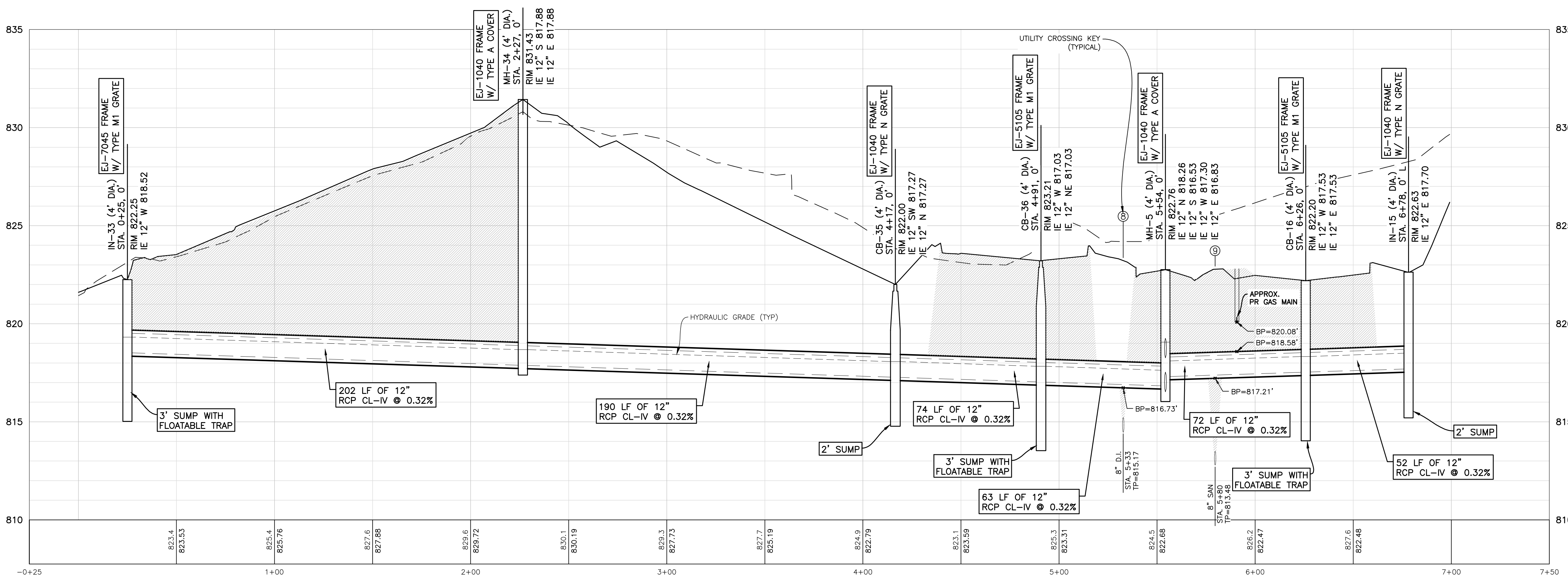
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DRAWN BY: MN  
DESIGN BY: KM  
CHECK BY: AP

**C-6.4**

NOT FOR CONSTRUCTION







- NOTES**
- SAND BACKFILL AND BEDDING TO BE MDOT CL II.
  - MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

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BRUCE MICHAEL  
(248) 703-4653

**STORM SEWER PROFILES**  
AUBURN ANGARA OAKS  
PART OF SEC. 32, T3N, R11E  
CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/29/2024
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CONSTRUCTION PLAN RESUBMITTAL #3	05/29/2025
WATER AND SANITARY PERMIT PLANS	07/07/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/26/2025

ORIGINAL ISSUE DATE: 05/19/2022

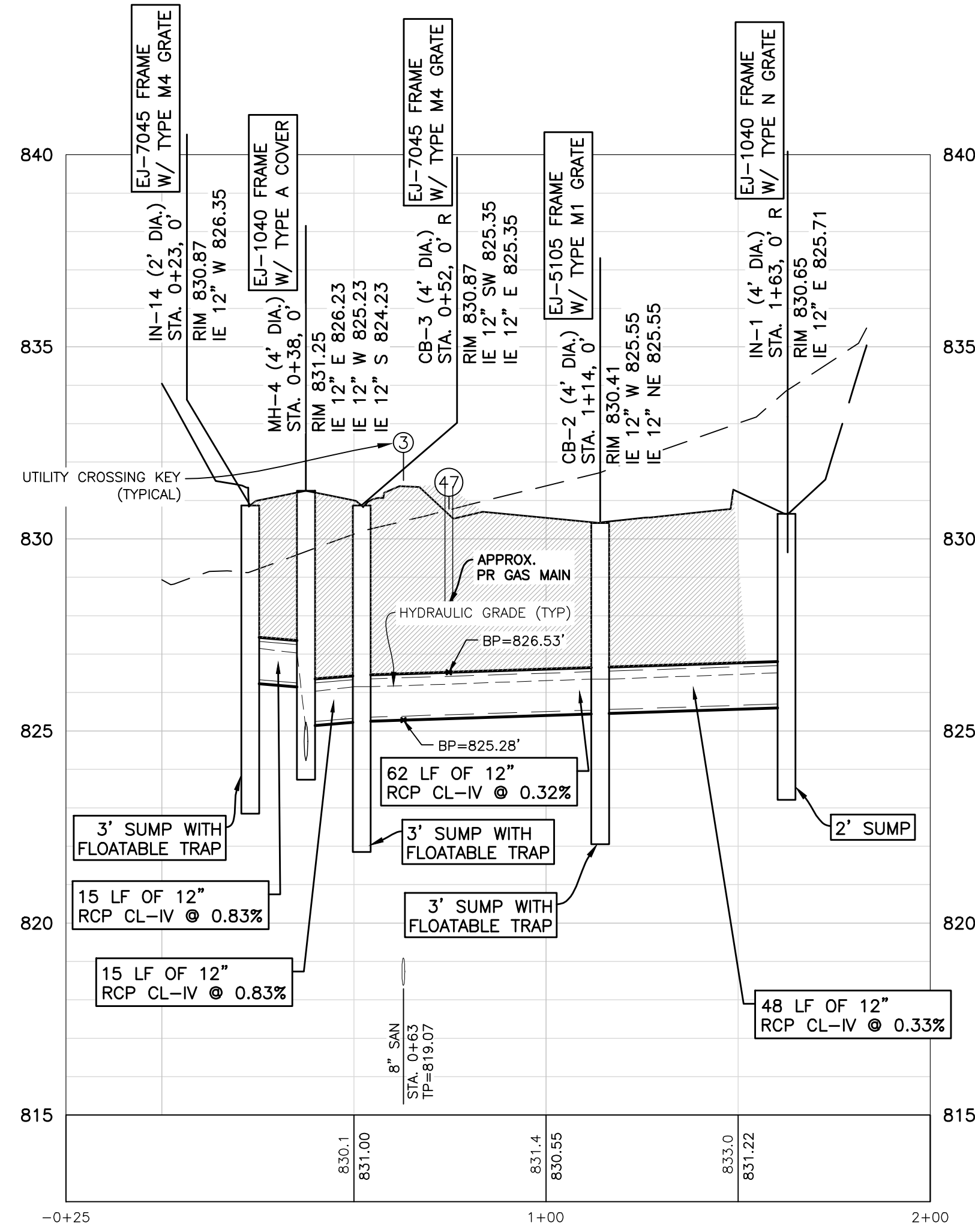
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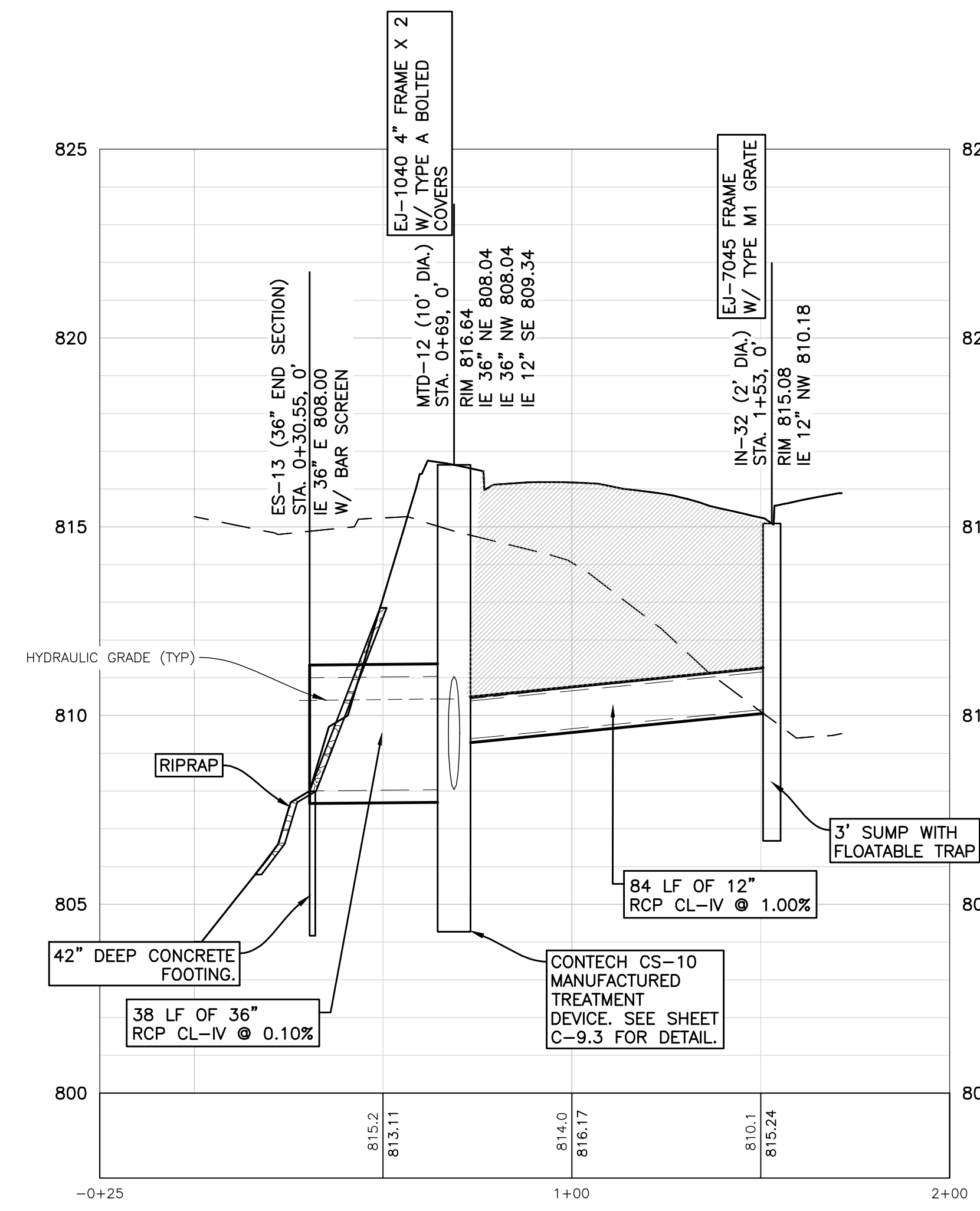
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CHECK BY: AP

**C-6.5**

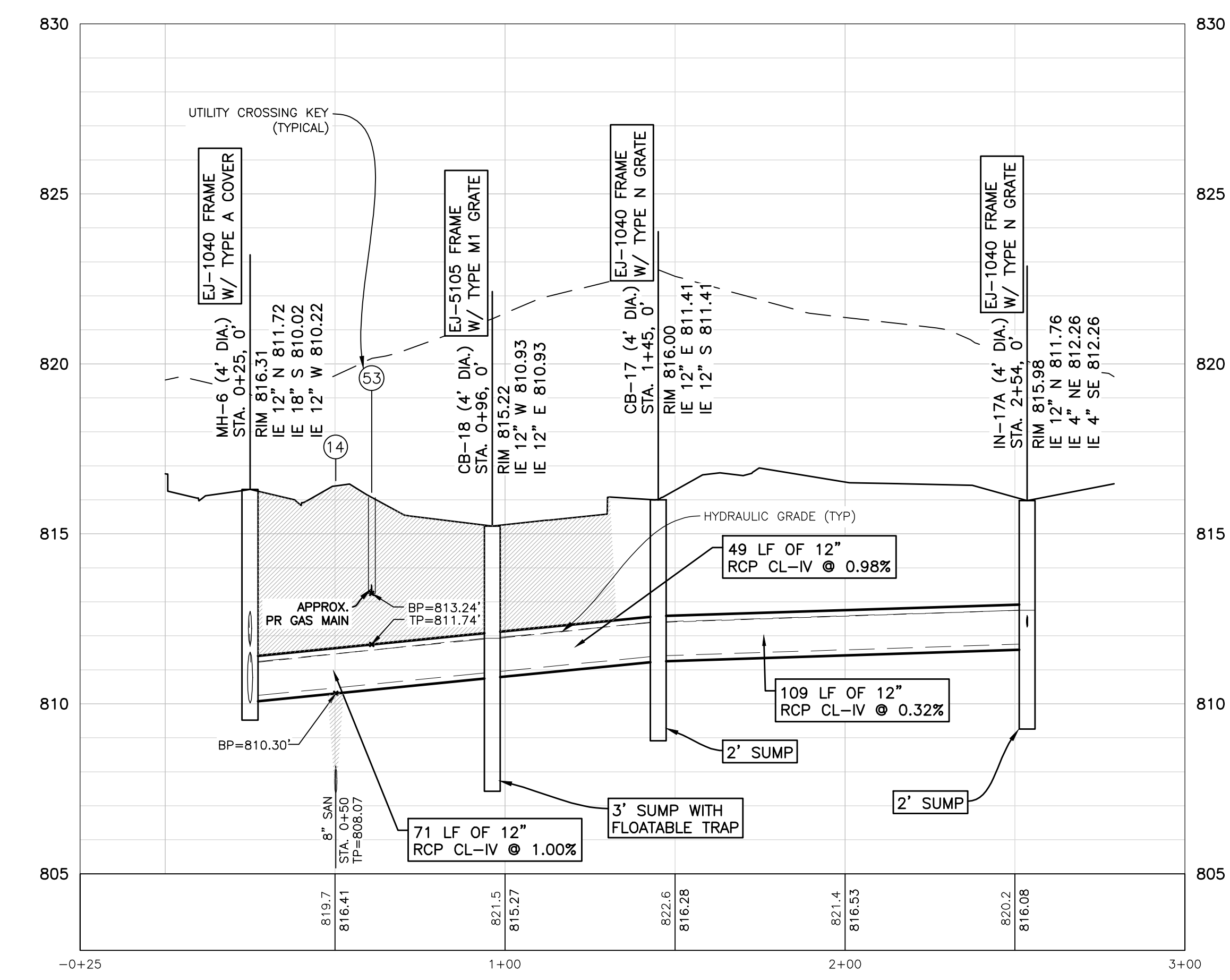
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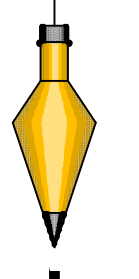
**STORM IN-1 TO IN-14**  
PROFILE SCALE  
HORIZ: 1"=30'  
VERT: 1"=3'



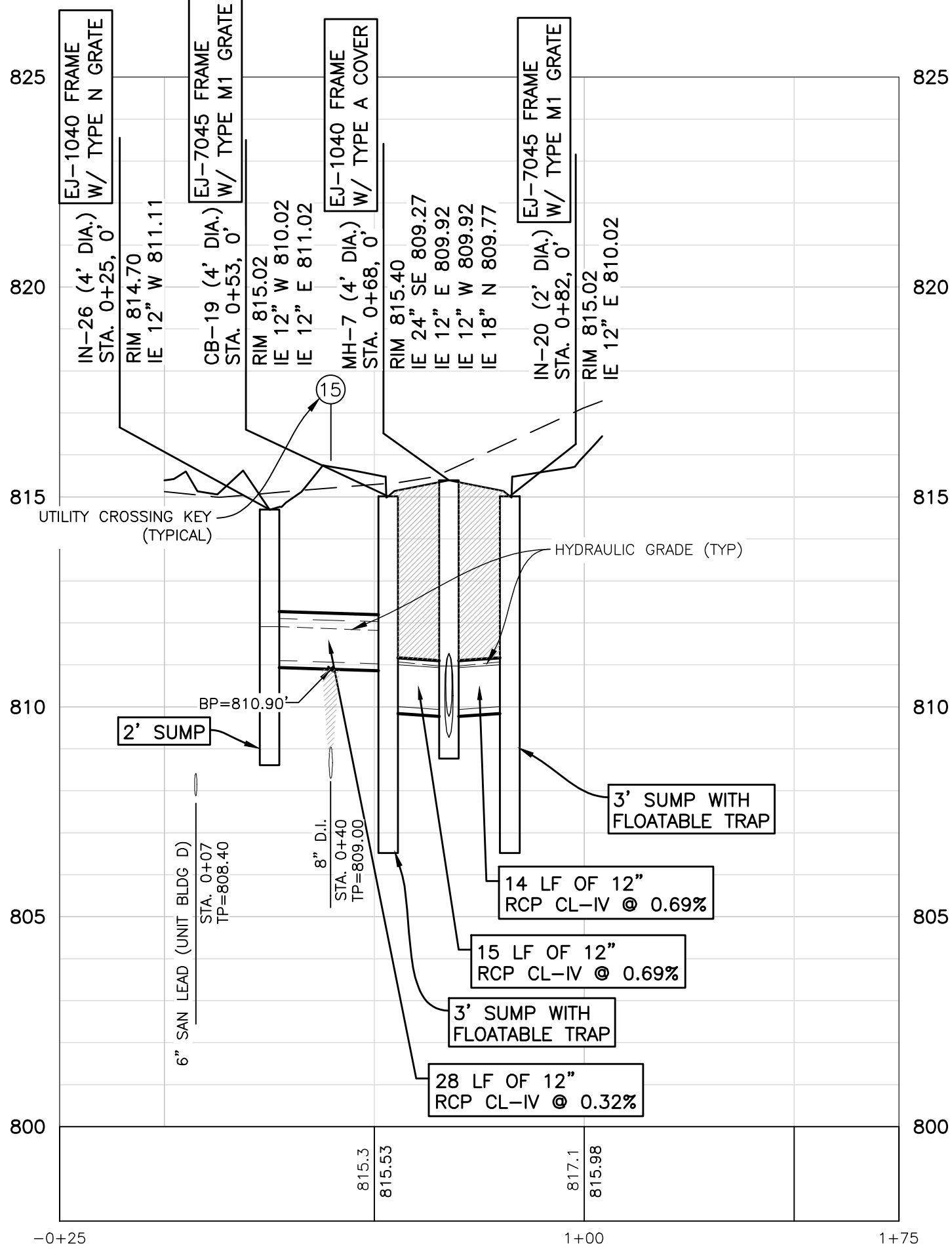
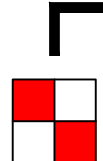
**STORM IN-32 TO ES-13**  
PROFILE SCALE  
HORIZ: 1"=30'  
VERT: 1"=3'



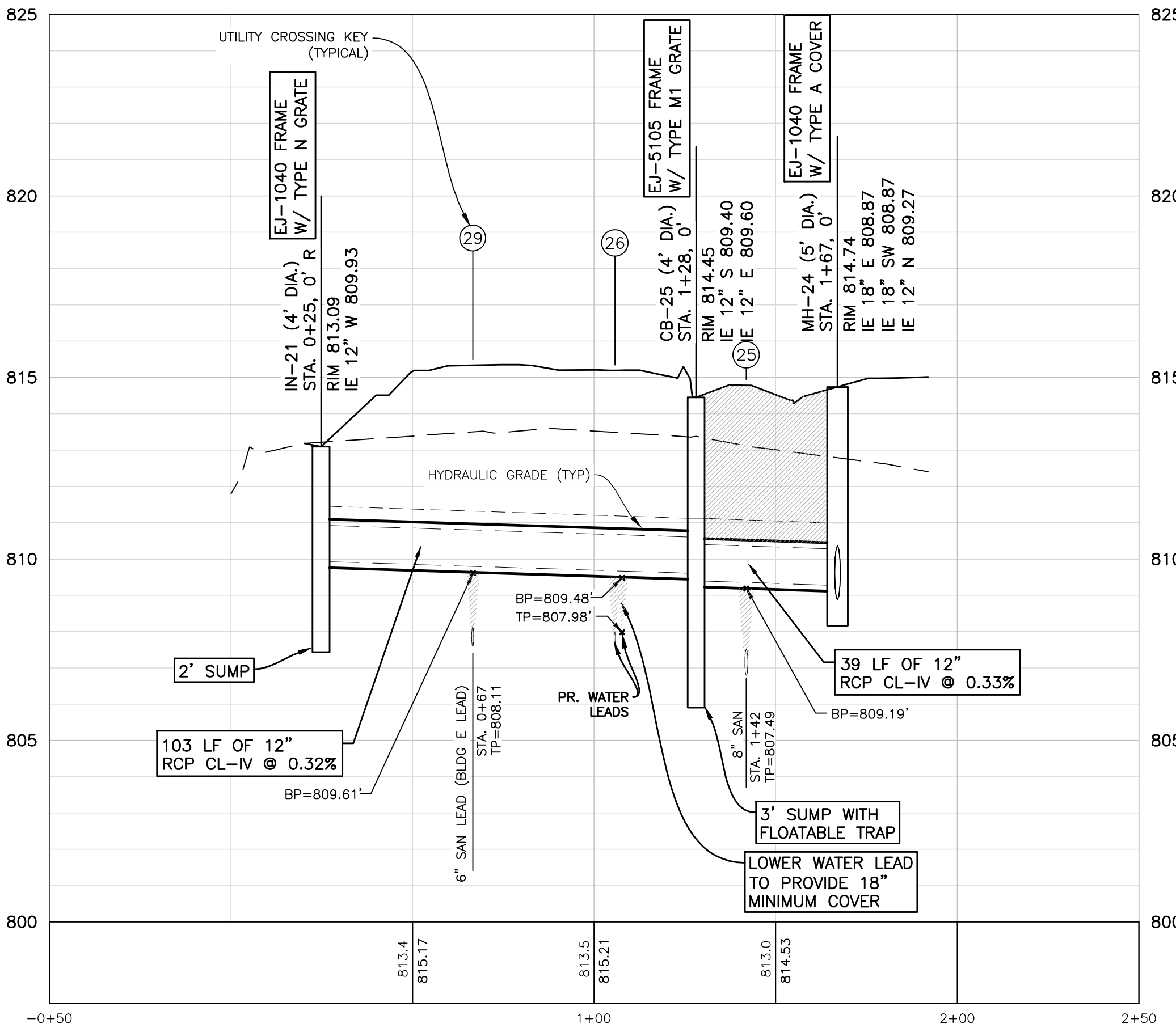
**STORM IN-17A TO MH-6**  
PROFILE SCALE  
HORIZ: 1"=30'  
VERT: 1"=3'



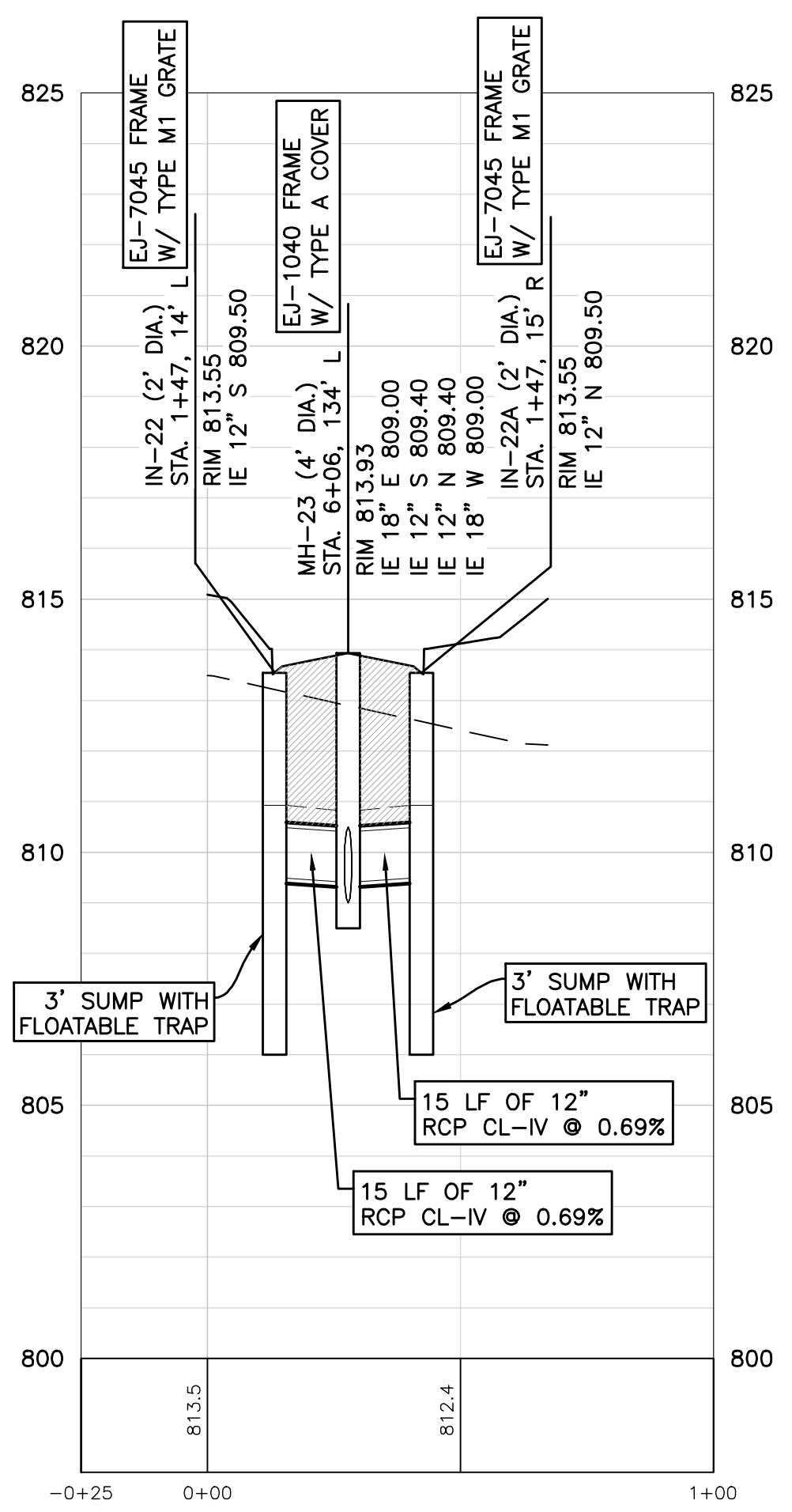




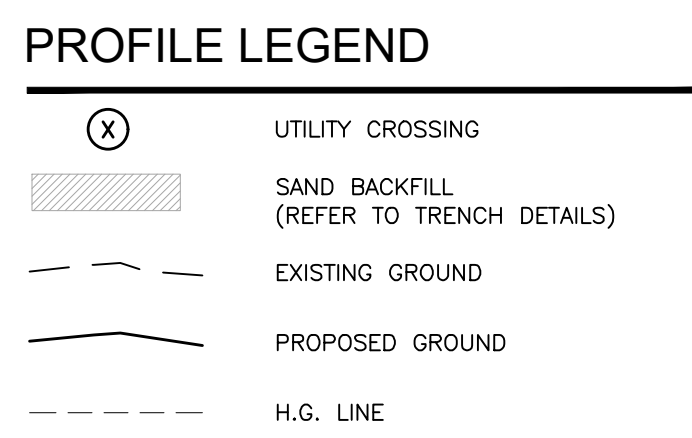
**STORM IN-26 TO IN-20**  
 PROFILE SCALE  
 HORIZ: 1"=30'  
 VERT: 1"=3'



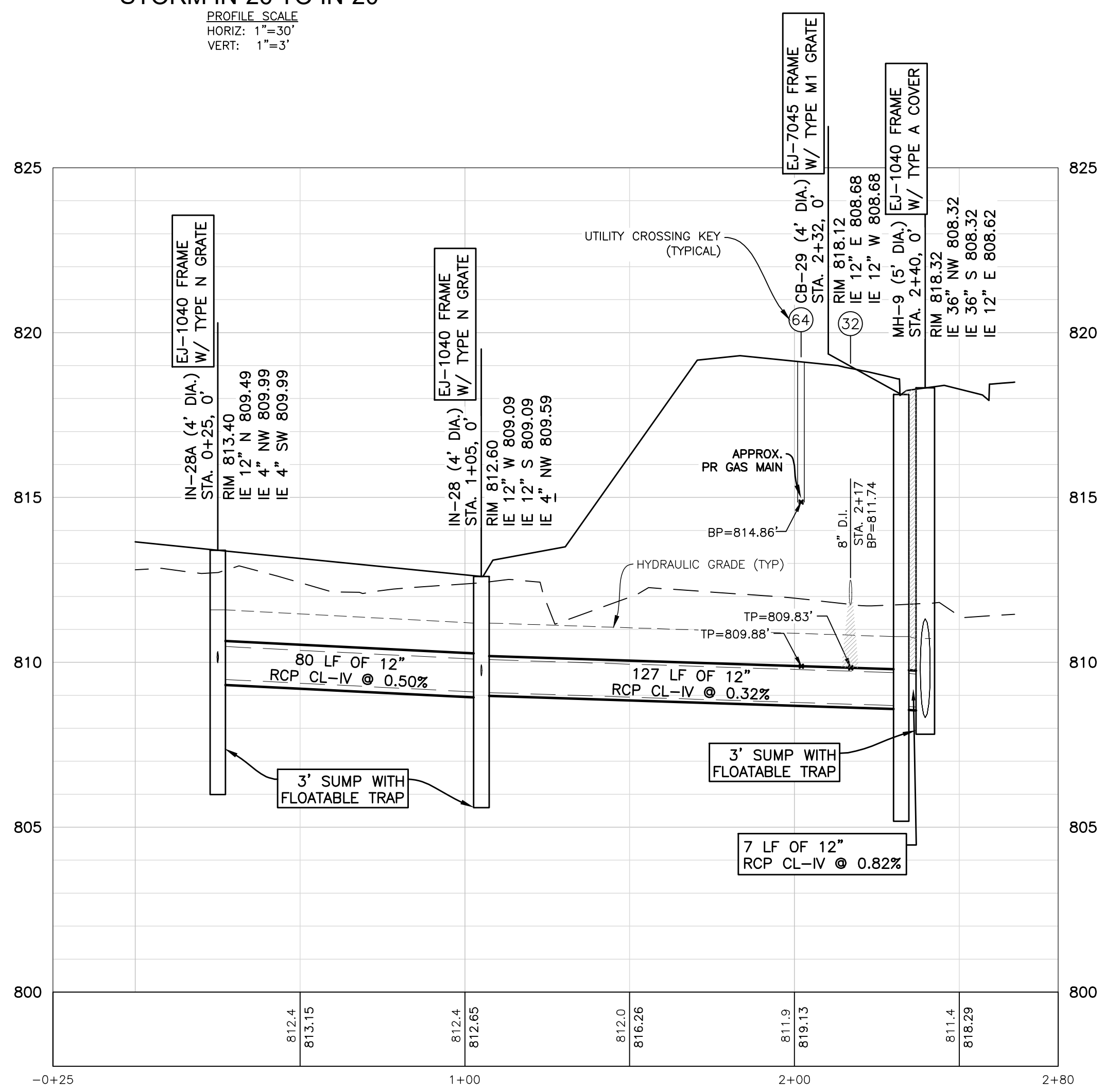
**STORM IN-21 TO MH-24**  
 PROFILE SCALE  
 HORIZ: 1"=30'  
 VERT: 1"=3'



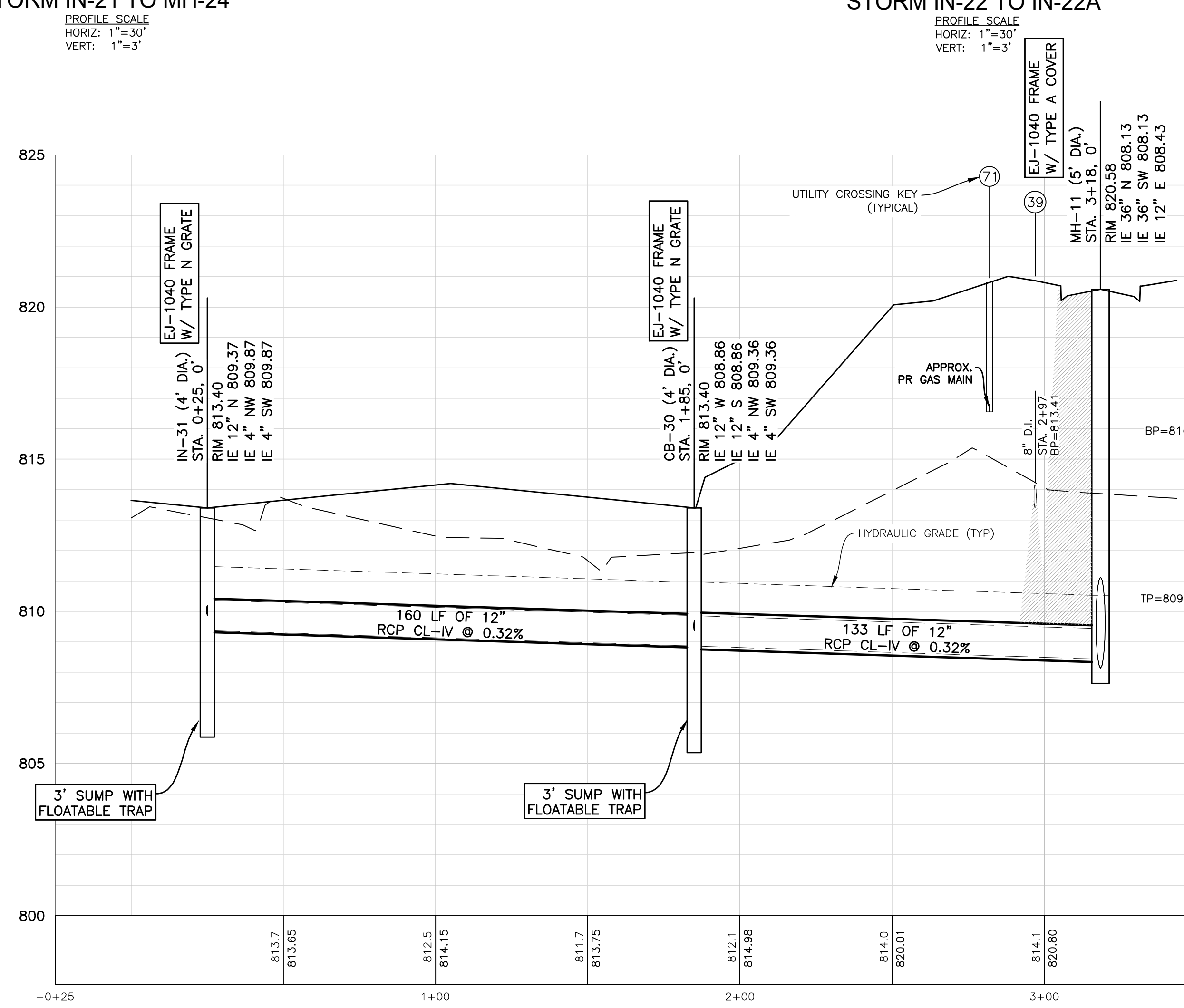
**STORM IN-22 TO IN-22A**  
 PROFILE SCALE  
 HORIZ: 1"=30'  
 VERT: 1"=3'



- NOTES**
- SAND BACKFILL AND BEDDING TO BE MDOOT CL II.
  - MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.



**STORM IN-28 TO MH-9**  
 PROFILE SCALE  
 HORIZ: 1"=30'  
 VERT: 1"=3'



**STORM IN-31 TO MH-11**  
 PROFILE SCALE  
 HORIZ: 1"=30'  
 VERT: 1"=3'

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THE LOCATION AND DEPTH OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXERCISE RESPONSIBILITY FOR DETERMINING THE EXACT LOCATION, DEPTH AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT :

**AUBURN ANGARA OAKS, LLC**  
 14496 N SHELDON RD  
 SUITE 230  
 PLYMOUTH, MI 48170  
 BRUCE MICHAEL  
 (248) 703-4653

**STORM SEWER PROFILES**  
 AUBURN ANGARA OAKS  
 PART OF SEC. 32, T3N, R11E  
 CITY OF ROCHESTER HILLS, OAKLAND COUNTY, MI

PLAN SUBMITTALS/REVISIONS	DATE
REVISED PRELIMINARY SITE PLAN TO CITY	09/04/2024
CONSTRUCTION PLAN SUBMITTAL	11/29/2024
ADDED WETLAND CONTS. EASEMENT	12/19/2024
CONSTRUCTION PLAN RESUBMITTAL #2	04/07/2025
CONSTRUCTION PLAN RESUBMITTAL #3	05/29/2025
WATER AND SANITARY PERMIT PLANS	07/07/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/01/2025
CONSTRUCTION PLAN RESUBMITTAL #4	08/26/2025

ORIGINAL ISSUE DATE:  
 05/19/2022

PROJECT NO: 22-051

SCALE: SEE ABOVE

0 1/2" 1"

FIELD: REICHERT  
 DRAWN BY: MN  
 DESIGN BY: RM  
 CHECK BY: AP

**C-6.6**

NOT FOR CONSTRUCTION