



OFFICE CALC	SHEET NUM.												PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.	
	4	5	10	11	24	25	26	27	28	30	31	39								
					2.8									2.8	601	32100	2.8	CY	<b>DRAINAGE</b> ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
					0.86									0.86	602	20000	0.86	CY	CONCRETE MASONRY	
					4,514									4,514	605	06000	4,514	FT	4" BASE PIPE UNDERDRAINS	
	100													100	611	00400	100	FT	4" CONDUIT, TYPE E	
	100				169									269	611	00410	269	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLET	
					5									5	611	04400	5	FT	12" CONDUIT, TYPE B, 706.02 OR 707.33	
					250									250	611	04600	250	FT	12" CONDUIT, TYPE C, 706.02 OR 707.33	
					72									72	611	07400	72	FT	18" CONDUIT, TYPE B, 706.02 OR 707.33	
					450									450	611	07600	450	FT	18" CONDUIT, TYPE C, 706.02 OR 707.33	
					383									383	611	10400	383	FT	24" CONDUIT, TYPE B, 706.02 OR 707.33	
					737									737	611	10600	737	FT	24" CONDUIT, TYPE C, 706.02 OR 707.33	
					11									11	611	98510	11	EACH	CATCH BASIN, NO. 2-3	
					1									1	611	99574	1	EACH	MANHOLE, NO. 3	
					1									1	611	99710	1	EACH	PRECAST REINFORCED CONCRETE OUTLET	
																			<b>WATER WORK</b>	
														125	638	01710	125	FT	8" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS, AWWA C900, DR14	
														1,990	638	02750	1,990	FT	12" WATER MAIN POLYVINYL CHLORIDE PIPE AND FITTINGS, AWWA C900, DR-14	
														4	638	07900	4	EACH	8" GATE VALVE AND VALVE BOX	
														7	638	08100	7	EACH	12" GATE VALVE AND VALVE BOX	
														5	638	10201	5	EACH	6" FIRE HYDRANT, AS PER PLAN ASSEMBLY, TYPE 1	70
														4	638	10480	4	EACH	FIRE HYDRANT REMOVED	
														4	SPECIAL	63820880	4	EACH	CUT AND PLUG EXISTING 8" WATER LINE, HEATH STD DWG WA-5	69
														150	638	98600	150	FT	WATER WORK, MISC.:14" WATER MAIN HDPE, DR-11 DIPS, DIRECTIONAL DRILL	70
														1	638	98000	1	EACH	WATER WORK, MISC.:8" CAP AND PLUG	71
																			<b>TRAFFIC CONTROL</b>	
														119.5	630	03100	119.5	FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
														37.5	630	03101	37.5	FT	GROUND MOUNTED SUPPORT, NO. 3 POST, AS PER PLAN	76
														61.38	630	80100	61.38	SF	SIGN, FLAT SHEET	
														33.5	630	80101	33.5	SF	SIGN, FLAT SHEET, AS PER PLAN, TYPE G	
														16	630	84900	16	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	76
														14	630	86002	14	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
														0.99	644	00104	0.99	MILE	EDGE LINE, 6", WHITE	
														0.49	644	00300	0.49	MILE	CENTER LINE, 5" YELLOW, DOUBLE SOLID	
														53	644	00500	53	FT	STOP LINE, 20" WHITE	
																			<b>MAINTENANCE OF TRAFFIC</b>	
				20										20	614	11110	20	hour	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
														14	614	12380	14	EACH	WORK ZONE IMPACT ATTENUATOR, 24" WIDE HAZARDS, (UNIDIRECTIONAL)	
LS														LS	614	12420	LS		DETOUR SIGNING	
														35	614	12440	35	EACH	WORK ZONE SIGN SUPPORT	
														35	614	12460	35	EACH	WORK ZONE MARKING SIGN	
														86	614	13310	86	EACH	BARRIER REFLECTOR, TYPE 1, 1 WAY	
														86	614	13350	86	EACH	OBJECT MARKER, ONE WAY	
				24										24	614	18601	24	SNMT	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	10
														1.89	614	22010	1.89	MILE	WORK ZONE EDGE LINE, CLASS I, 6"	
LS														LS	615	10000	LS		ROADS FOR MAINTAINING TRAFFIC	
														1,340	615	20000	1,340	SY	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	
				8										8	616	10000	8	MGAL	WATER	
														3,946	622	41100	3,946	FT	PORTABLE BARRIER, UNANCHORED	10
																			<b>INCIDENTALS</b>	
LS														LS	614	11000	LS		MAINTAINING TRAFFIC	
LS														LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
LS														LS	624	10001	LS		MOBILIZATION, AS PER PLAN	5
LS														LS	SPECIAL	69098400	LS		RECORD CONSTRUCTION DRAWINGS	6

GENERAL SUMMARY

DESIGN AGENCY  
**verdantas**  
 1555 WEST MAIN STREET  
 SUITE 200  
 TEL: 740.344.5451  
 FAX: 614.360.0023

DESIGNER  
**MRO**

REVIEWER  
 SRH 09/16/24

PROJECT ID  
 104792

SHEET TOTAL  
 P.23 P.91

SHEET NO.	REFERENCE NO.	STATION		SIDE	202					601	602	605		606			609	611						690				
		FROM	TO		CURB AND GUTTER REMOVED	PIPE REMOVED, 24" AND UNDER	FENCE REMOVED	GUARDRAIL REMOVED	CATCH BASIN REMOVED	ROCK CHANNEL PROTECTION TYPE B WITH FILTER	CONCRETE MASONRY	4" UNDERDRAIN, TYPE F	4" BASE PIPE UNDERDRAINS	ANCHOR ASSEMBLY, TYPE E	ANCHOR ASSEMBLY, TYPE T	GUARDRAIL, TYPE MGS	COMBINATION CURB AND GUTTER, TYPE 2	12" CONDUIT, TYPE B, 706.02 OR 707.33	12" CONDUIT, TYPE C, 706.02 OR 707.33	18" CONDUIT, TYPE B, 706.02 OR 707.33	18" CONDUIT, TYPE C, 706.02 OR 707.33	24" CONDUIT, TYPE B, 706.02 OR 707.33	24" CONDUIT, TYPE C, 706.02 OR 707.33	CATCH BASIN, CB-2-3	MANHOLE, NO. 3	PRECAST REINFORCED CONCRETE OUTLET	MAILBOX REMOVED AND RESET	
					FT	FT	FT	FT	EACH	CY	CY	FT	FT	FT	EACH	EACH	FT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH
33	D13	207+90	208+61	LT													5		72					1				
33	D12	208+61	210+00	LT																		139	1					
33	R1	207+91	208+50	LT		59																						
33	R2	208+31	210+00	LT		17																						
33	R3	208+42	210+00	LT			158																					
33	UD1	207+65	210+00	RT									235															
32	UD2	208+28	210+00	LT									186															
34	UD3	210+00	214+00	LT									400															
34	UD4	210+00	210+60	RT									60															
34	D11	210+00	212+50	LT																		250	1					
34	UD5	211+25	214+00	RT									275															
34-35	R4	211+97	215+41	LT		411																						
34	D10	212+50	214+00	LT																	150		1					
34-35	D9	214+00	215+41	LT								32									140		1					
34-35	UD6	214+00	215+97	LT									197															
34-35	UD7	214+00	215+97	RT									197															
35	R5	215+41	215+41	LT					1																			
35	D8	215+41	215+97	LT								38																
35	D7	215+97	215+97	LT						1.4	0.43											58		1				
35	UD8	215+97	218+50	RT									253															
35	UD9	215+97	218+50	LT									253															
35	MB1	213+05	218+97	LT																								1
35	C1	218+97	219+20	RT	11												11											
35	C2	219+20	217+15	RT	11												11											
35	G1	215+26	217+15	LT				204						2	212.5													
35	G2	214+77	217+15	RT				203						2	212.5													
35	D36	218+50	221+00	LT																250			1					
35	UD10	218+50	218+92	RT									52															
35-36	UD11	218+50	221+00	LT									250															
35-36	UD12	219+26	221+00	RT									184															
36	MB2	220+63	227+00	LT																								1
36	MB3	221+85	227+00	LT																								1
36	MB4	224+17	227+00	LT																								
36-37	UD13	221+00	227+00	LT									600															
36-37	UD14	221+00	227+00	RT									600															
36	D35	221+00	222+50	LT								41									150		1					
36	D34	222+50	225+50	LT																	300		1					
37	MB5	226+54	229+33	LT																								1
37	MB6	226+88	229+33	LT																								1
37	D30	229+33	229+33	LT						1.4	0.43																	
37	D33	225+50	226+50	LT																		150	1					
37	D32	226+50	228+40	LT																		140	1					
37	UD15	226+50	229+18	LT								10	272														1	
37	UD16	226+50	229+10	RT								10	263													1		
37	D31	228+40	229+33	LT																		93	1					
37	MB7	228+34	228+87	LT																								2
37	R6	228+40	228+87	LT		47																						
37	G3	228+93	230+00	LT										1	1	107												
37	G4	228+77	230+00	RT					75					1	1	129												
38	G5	230+00	230+75	LT					73					1	1	107												
38	G6	230+00	230+73	RT					75																			
38	UD17	230+21	230+75	RT										1	1	129												
38	UD18	230+27	230+75	LT								38	54														1	
38	UD19	230+75	232+08	RT									48															
38	UD20	230+75	231+35	RT									75															
TOTALS CARRIED TO GENERAL SUMMARY					22	534	158	703	1	2.8	0.86	169	4514	8	4	897.0	22	5	250	72	450	383	737	11	1	3	7	

ROADWAY SUBSUMMARY

DESIGN AGENCY  
**verdantas**  
 1100 W. BROADWAY, SUITE 100  
 DENVER, CO 80202  
 TEL: 720.344.5455  
 FAX: 720.344.5000

DESIGNER  
**MRO**

REVIEWER  
**SRH 09/16/24**

PROJECT ID  
**104792**

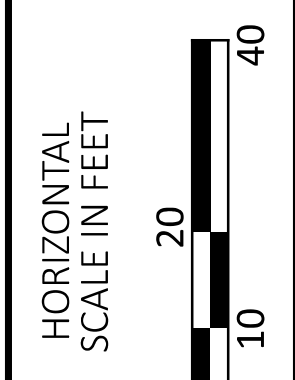
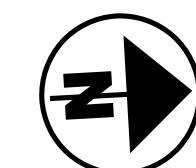
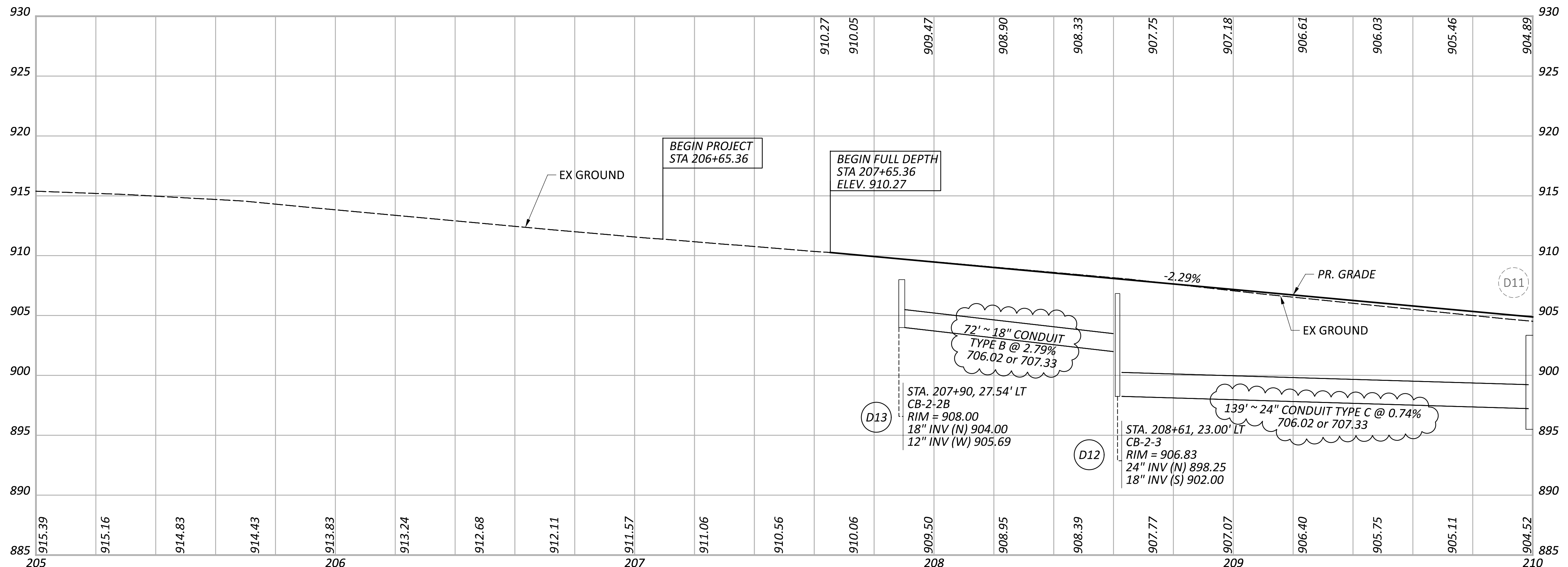
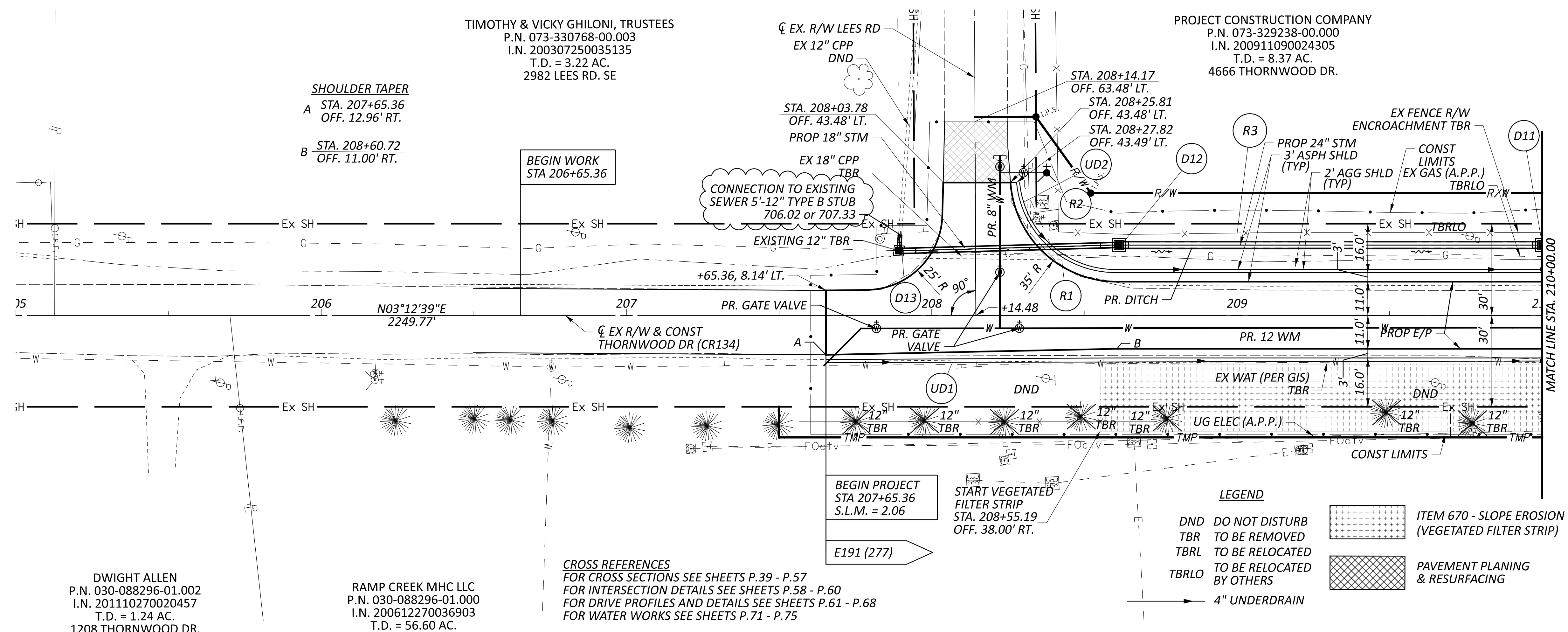
SHEET TOTAL  
**P.24 | P.91**

STATION	SIDE	CAD AREA - SURFACE	CAD AREA - CONCRETE BASE	CAD AREA - SUBGRADE	CAD AREA - AGG SHOULDER	206	206	206	254	301	304	407	441	441	617
		SF	SF	SF	SF	CEMENT STABILIZED SUBGRADE, 14 INCHES DEEP	CEMENT	CURING COAT	PAVEMENT PLANING, ASPHALT CONCRETE, 3"	9" ASPHALT CONCRETE BASE	8" AGGREGATE BASE (LIMESTONE)	NON-TRACKING TACK COAT	1 1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (449) PG64-22	1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 (449) PG64-22	12" COMPACTED AGGREGATE
						SY	TON	SY	SY	CY	CY	GAL	CY	CY	CY
<b>THORNWOOD DR FULL DEPTH</b>															
INCLUDES SIDE ROAD RADIUS															
207+65	229+17	62409	63848	67075	7620	7453	216	7453		1774	1656	832	241	337	282
230+24	232+08	7246	7347	7581	620	842	24	842		204	187	97	28	39	23
<b>THORNWOOD DR BRIDGE</b>															
229+17	230+24	3129							348			56	12	17	
<b>LEES RD RESURFACING</b>															
208+14		425							47			8	2	2	
<b>NORTHBROOK CT RESURFACING</b>															
219+09		459							51			8	2	2	
<b>IRVING WICK DR RESURFACING</b>															
231+58		662							74			12	3	4	
<b>THORNWOOD DR RESURFACING</b>															
232+08	232+28	486							54			9	2	3	
<b>TOTALS CARRIED TO GENERAL SUMMARY</b>						<b>8295</b>	<b>240</b>	<b>8295</b>	<b>395</b>	<b>1978</b>	<b>1844</b>	<b>992</b>	<b>282</b>	<b>395</b>	<b>305</b>

PAVEMENT SUBSUMMARY



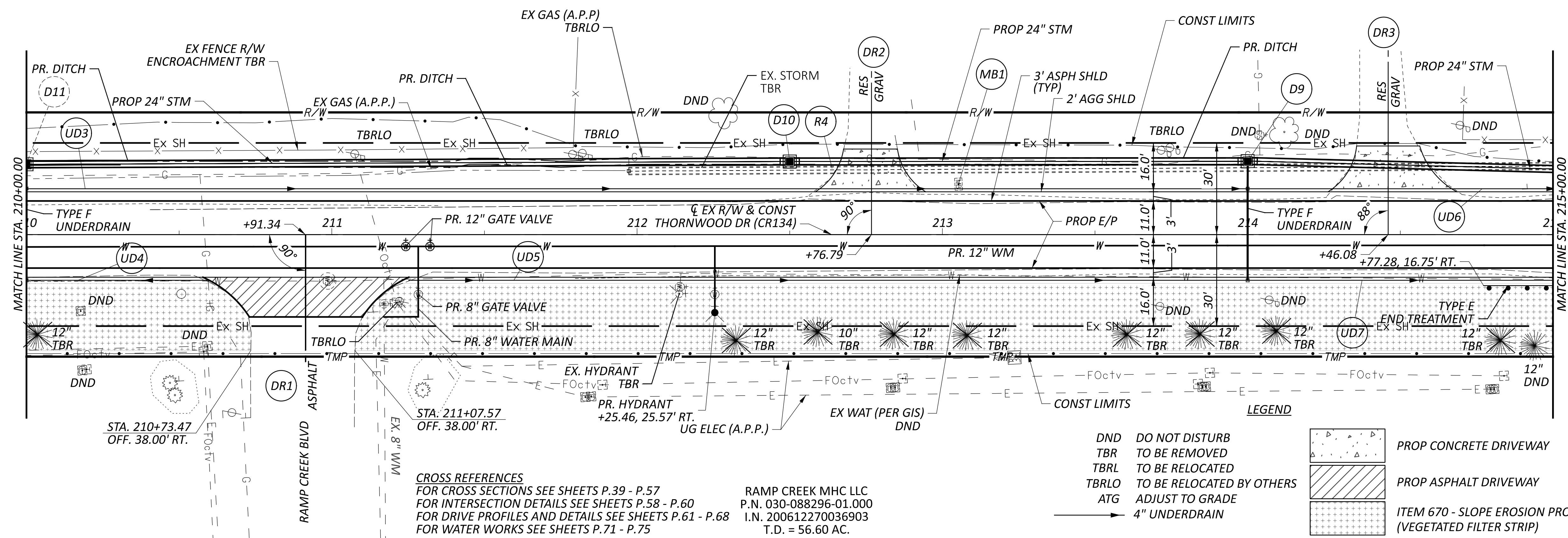




**PLAN AND PROFILE - THORNWOOD DR**  
**STA 205+00 TO STA 210+00**

DESIGN AGENCY	<b>verdantas</b>
DESIGNER	MRO
REVIEWER	SRH 09/16/24
PROJECT ID	104792
SHEET	P.33
TOTAL	P.91

PROJECT CONSTRUCTION COMPANY  
 P.N. 073-329238-00.000  
 I.N. 200911090024305  
 T.D. = 8.37 AC.  
 4666 THORNWOOD DR.



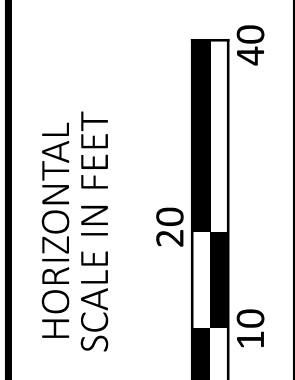
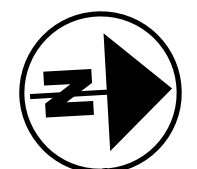
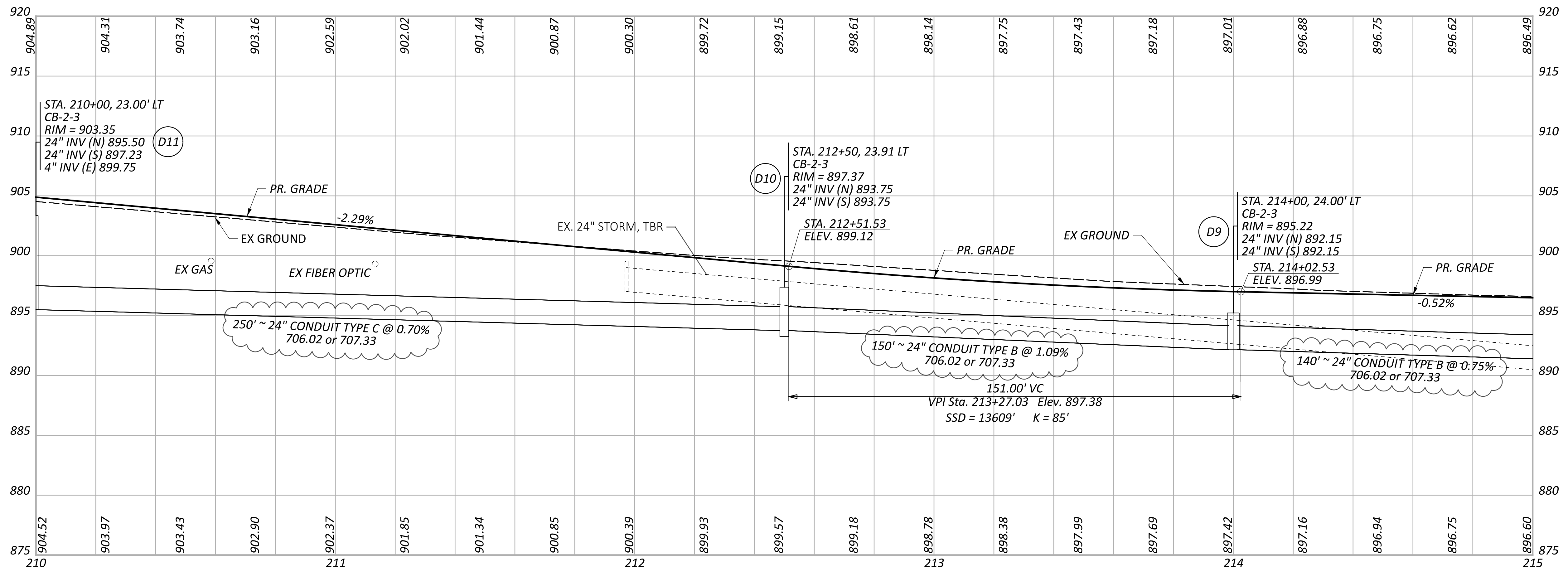
CROSS REFERENCES  
 FOR CROSS SECTIONS SEE SHEETS P.39 - P.57  
 FOR INTERSECTION DETAILS SEE SHEETS P.58 - P.60  
 FOR DRIVE PROFILES AND DETAILS SEE SHEETS P.61 - P.68  
 FOR WATER WORKS SEE SHEETS P.71 - P.75

RAMP CREEK MHC LLC  
 P.N. 030-088296-01.000  
 I.N. 200612270036903  
 T.D. = 56.60 AC.

- DND DO NOT DISTURB
- TBR TO BE REMOVED
- TBRLO TO BE RELOCATED
- TBRLO TO BE RELOCATED BY OTHERS
- ATG ADJUST TO GRADE
- 4\"/>

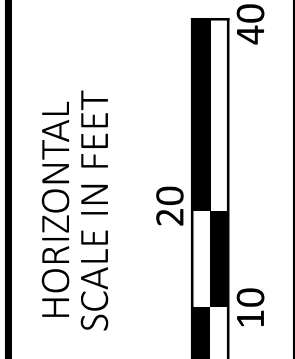
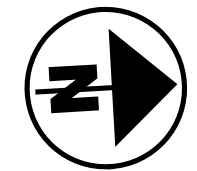
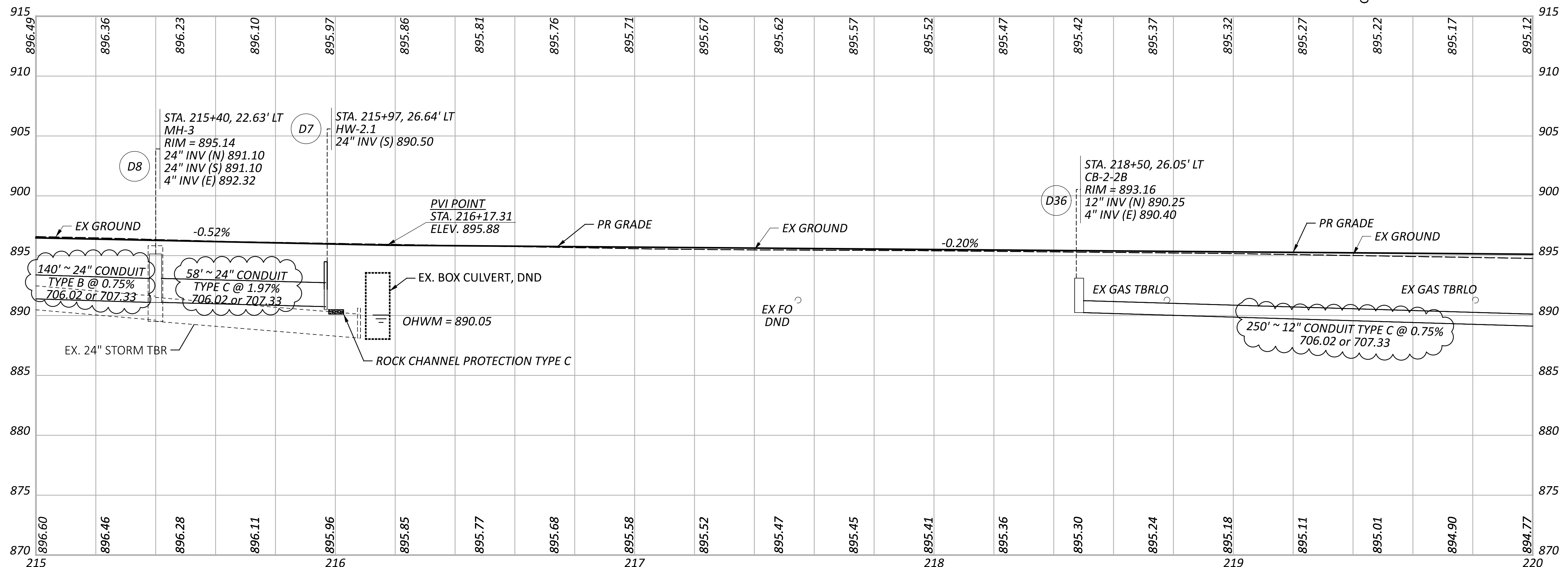
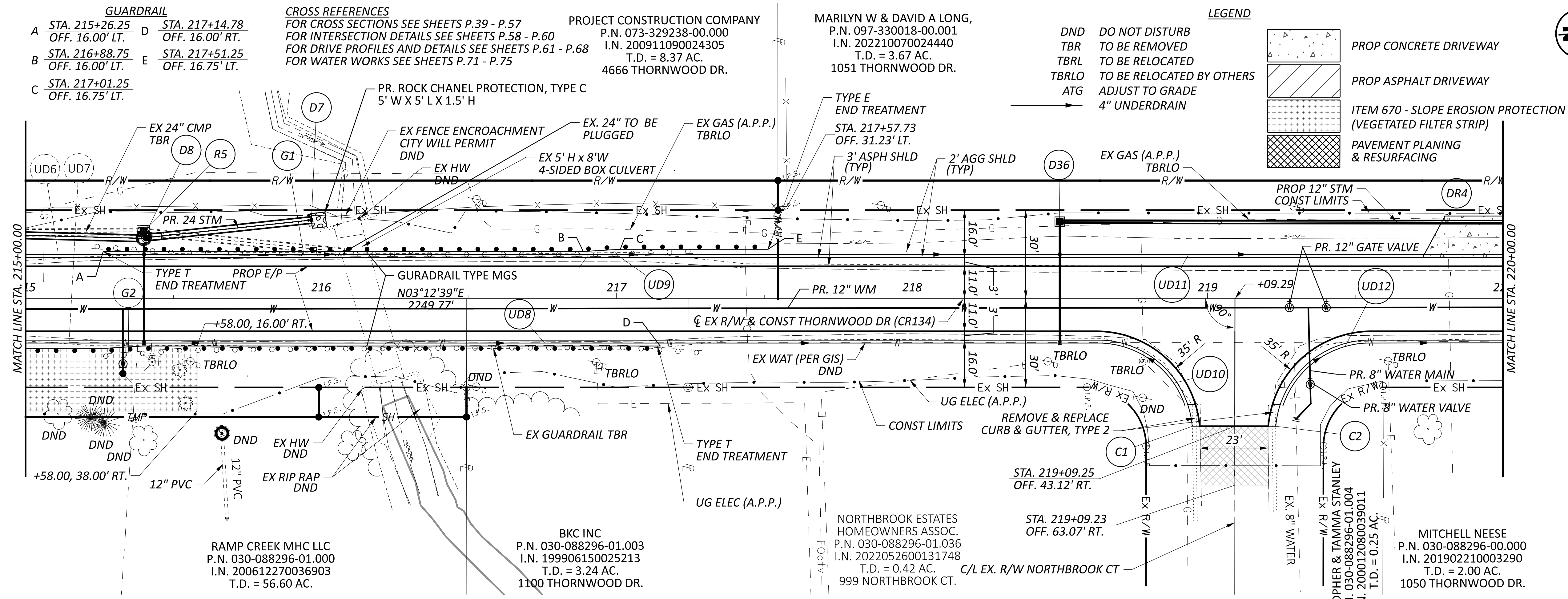
LEGEND

- PROP CONCRETE DRIVEWAY
- PROP ASPHALT DRIVEWAY
- ITEM 670 - SLOPE EROSION PROTECTION (VEGETATED FILTER STRIP)



PLAN AND PROFILE - THORNWOOD DR  
 STA 210+00 TO STA 215+00

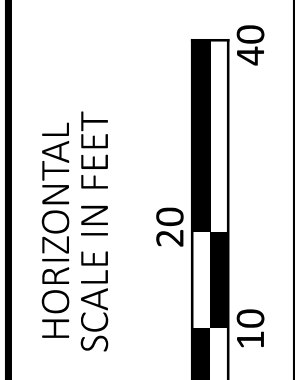
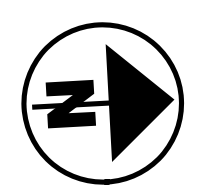
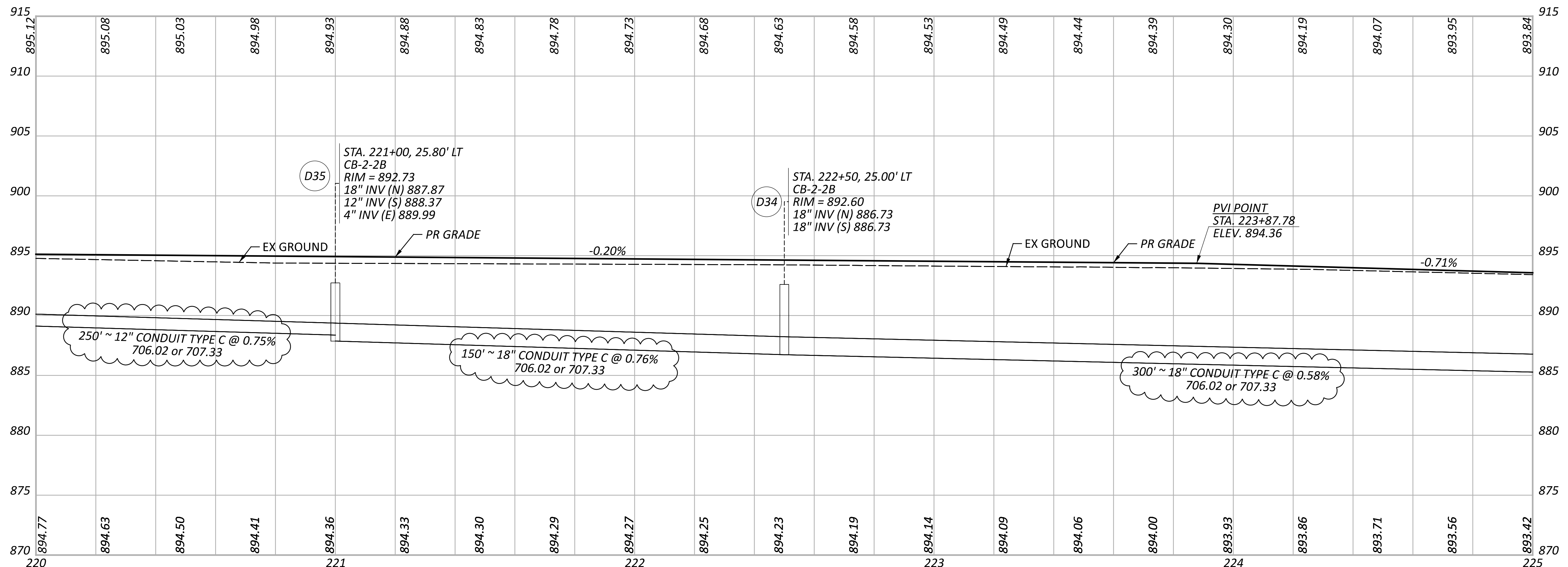
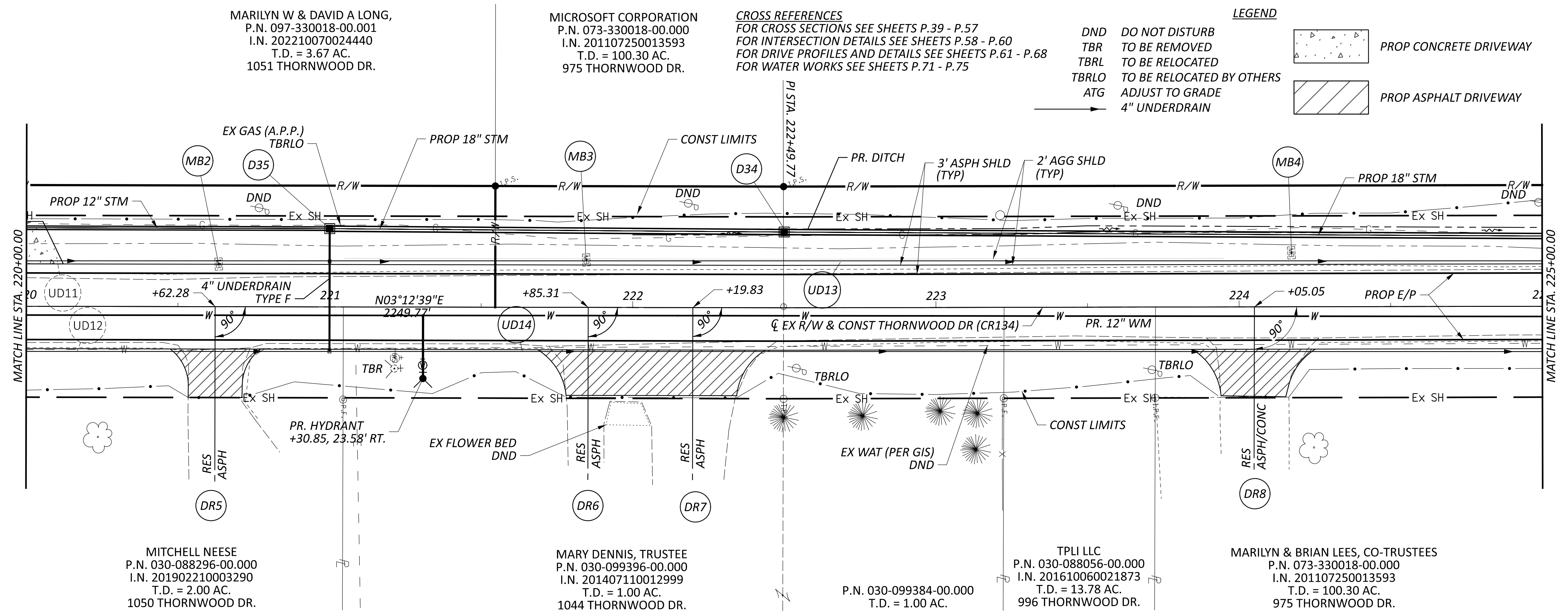
DESIGN AGENCY	<b>verdantas</b>
DESIGNER	MRO
REVIEWER	SRH
PROJECT ID	104792
SHEET	P.34
TOTAL	P.91



**PLAN AND PROFILE - THORNWOOD DR  
 STA 215+00 TO STA 220+00**

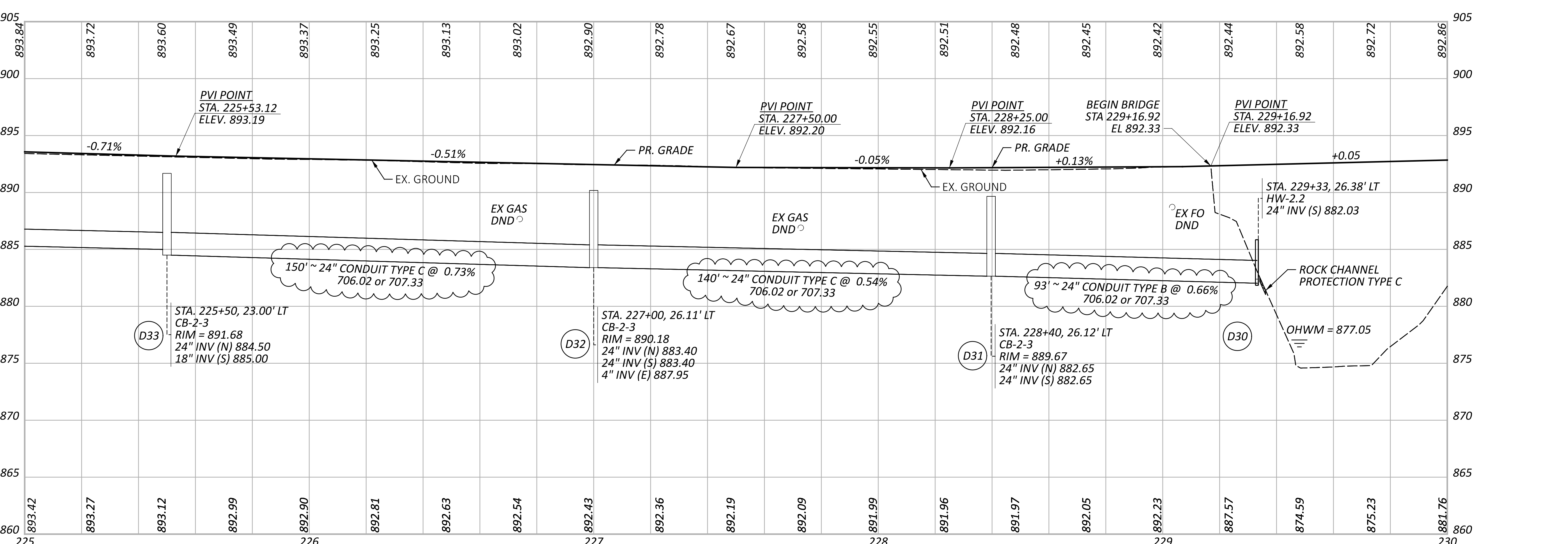
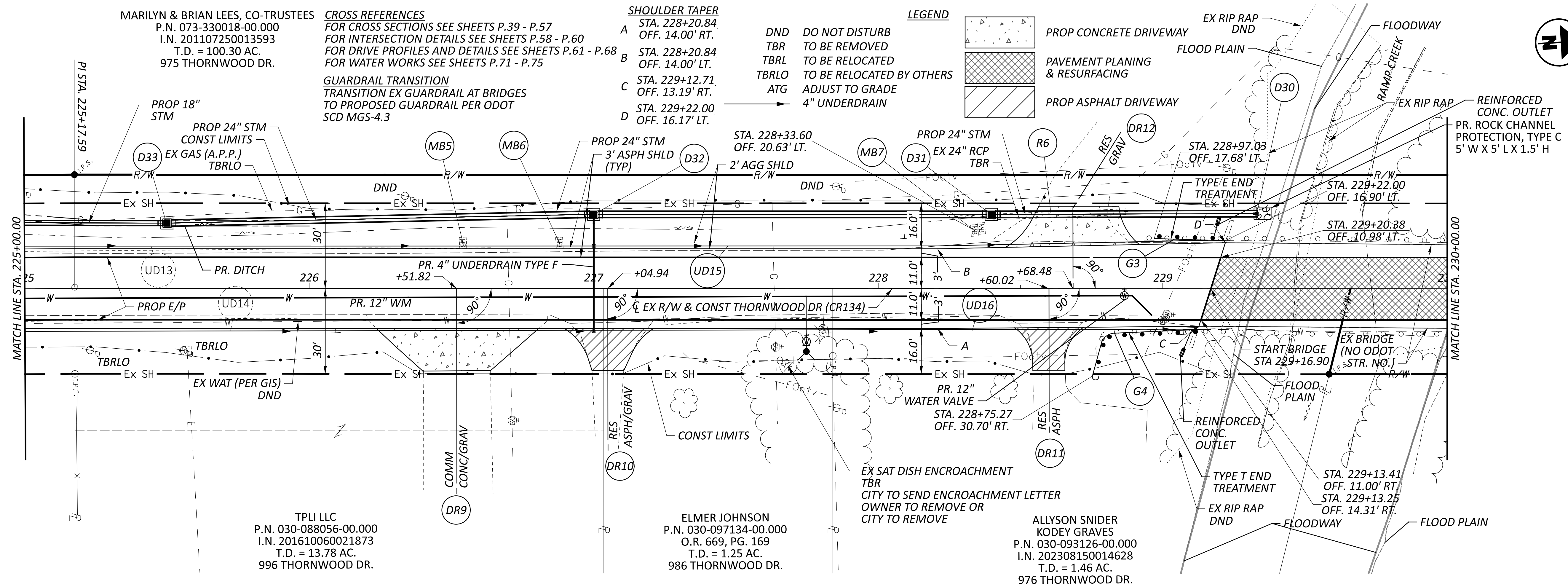
DESIGN AGENCY	
<b>verdantas</b>	
1505 WASH MAIN STREET TEL: 740.344.5461 FAX: 614.362.0023	
DESIGNER	
<b>MRO</b>	
REVIEWER	
<b>SRH 09/16/24</b>	
PROJECT ID	
<b>104792</b>	
SHEET	TOTAL
<b>P.35</b>	<b>P.91</b>





**PLAN AND PROFILE - THORNWOOD DR  
 STA 220+00 TO STA 225+00**

DESIGN AGENCY	<b>verdantas</b>
DESIGNER	MRO
REVIEWER	SRH
PROJECT ID	104792
SHEET	P.36
TOTAL	P.91



MARILYN & BRIAN LEES, CO-TRUSTEES  
 P.N. 073-330018-00.000  
 I.N. 201107250013593  
 T.D. = 100.30 AC.  
 975 THORNWOOD DR.

**CROSS REFERENCES**  
 FOR CROSS SECTIONS SEE SHEETS P.39 - P.57  
 FOR INTERSECTION DETAILS SEE SHEETS P.58 - P.60  
 FOR DRIVE PROFILES AND DETAILS SEE SHEETS P.61 - P.68  
 FOR WATER WORKS SEE SHEETS P.71 - P.75

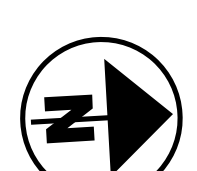
**GUARDRAIL TRANSITION**  
 TRANSITION EX GUARDRAIL AT BRIDGES  
 TO PROPOSED GUARDRAIL PER ODOT  
 SCD MGS-4.3

**SHOULDER TAPER**  
 A STA. 228+20.84  
 OFF. 14.00' RT.  
 B STA. 228+20.84  
 OFF. 14.00' LT.  
 C STA. 229+12.71  
 OFF. 13.19' RT.  
 D STA. 229+22.00  
 OFF. 16.17' LT.

**LEGEND**  
 DND DO NOT DISTURB  
 TBR TO BE REMOVED  
 TBRL TO BE RELOCATED  
 TBRLG TO BE RELOCATED BY OTHERS  
 ATG ADJUST TO GRADE  
 4" UNDERDRAIN

PROP CONCRETE DRIVEWAY  
 PAVEMENT PLANING & RESURFACING  
 PROP ASPHALT DRIVEWAY

EX RIP RAP  
 FLOOD PLAIN  
 FLOODWAY  
 RAMP CREEK  
 EX RIP RAP  
 REINFORCED CONC. OUTLET  
 PR. ROCK CHANNEL PROTECTION, TYPE C  
 5' W X 5' L X 1.5' H



**PLAN AND PROFILE - THORNWOOD DR  
 STA 225+00 TO STA 230+00**

DESIGN AGENCY	<b>verdantas</b>
DESIGNER	MRO
REVIEWER	SRH 09/16/24
PROJECT ID	104792
SHEET	P.37
TOTAL	P.91



**W04 - WATER MAIN PROTECTION**

LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL WATER LINES, SERVICES AND APPURTENANCES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT HIS DETAILS AND METHODS OF SUPPORTING THE WATER LINES ACROSS THE SEWER TRENCH TO THE ENGINEER FOR APPROVAL BY THE WATER DEPARTMENT. SUPPORT METHOD AND DETAIL APPROVAL SHALL BE SECURED PRIOR TO THE COMMENCEMENT OF EXCAVATION OPERATIONS.

**W05 - CUSTOMER NOTIFICATION**

THE CONTRACTOR SHALL NOTIFY ALL WATER CUSTOMERS AFFECTED BY THE PROPOSED WORK SEVENTY-TWO (72) HOURS IN ADVANCE OF THE APPROXIMATE TIME AND DURATION THEY SHALL BE WITHOUT WATER SERVICE.

**W06 - WATERLINE CONNECTIONS**

THE CONTRACTOR SHALL CONNECT ALL EXISTING MAINS, SERVICE LINES, SERVICE LINES, ETC. TO THE PROPOSED LINE. THE CONNECTION OF EXISTING WATERLINES AND SERVICES TO PROPOSED WATERLINES SHALL BE DONE IN A MANNER THAT WILL CAUSE A MINIMUM OF INCONVENIENCE TO THOSE WITH AFFECTED SERVICES. WORK CONCERNING THE DISCONNECTION AND RECONNECTION OF EXISTING WATERLINES SHALL BE DONE BETWEEN THE HOURS OF 9:00 A.M. AND 3:00 P.M., OR AS DIRECTED BY THE ENGINEER. NO SUCH WORK SHALL BEGIN UNTIL THE CITY ENGINEER, THE HEATH FIRE DEPARTMENT, THE CITY OF HEATH, AND THE RESIDENTS WHOSE SERVICES WILL BE AFFECTED ARE ALL NOTIFIED OF THE EXTENT, NATURE, AND TIME OF ANTICIPATED WORK AND THE METHOD AND SCHEDULE OF SUCH WORK HAS BEEN APPROVED BY THE CITY OF HEATH.

**W07 - WATERLINE PROFILE**

THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THE PROFILES IS APPROXIMATE.

**W08 - WATER MAIN AND SERVICE LOCATION**

ALL EXISTING WATER MAINS SHOWN ON THE PLANS WERE OBTAINED BY DILIGENT SEARCHES OF EXISTING RECORDS AND FIELD OBSERVATIONS. LOCATIONS AND ELEVATIONS ARE APPROXIMATE ONLY. ALL INDIVIDUAL SERVICE LINES MAY NOT BE SHOWN AND SHOULD BE LOCATED BY THE CONTRACTOR PRIOR TO EXCAVATION.

**W09 - CONSTRUCTION PROCEDURE**

TIME OF ALL WATER MAIN SHUT DOWNS SHALL BE DETERMINED BY THE DIVISION OF WATER. WHERE FEASIBLE, THE RELOCATED LINES SHALL BE LAID TO THE NEW LINE AND GRADE, TESTED AND DISINFECTED PRIOR TO SHUTTING DOWN ANY EXISTING WATER MAIN. THE CONNECTIONS OF THE RELOCATED LINE TO THE EXISTING MAIN SHALL BE DONE AT A TIME AS APPROVED BY THE WATER DEPARTMENT. ALL OPERATION OF EXISTING WATER MAIN VALVES SHALL BE DONE BY THE WATER DEPARTMENT AND NOT THE CONTRACTOR.

**W10 - SERVICE DURING RELOCATION**

AT ALL LOCATIONS WHERE THE EXISTING WATERLINE IS TO BE RELOCATED, ALL EXISTING SERVICE TAPS SHALL REMAIN IN SERVICE AT ALL TIMES. A TEMPORARY WATERLINE SHALL BE INSTALLED DURING THE CONSTRUCTION OF THE PROPOSED NEW WATERLINE.

**W11 - WATERLINE TESTING AND DISINFECTION**

ALL WATERLINES SHALL BE PRESSURE TESTED AT 150 PSI FOR 2 HOURS PRIOR TO ACCEPTANCE BY THE CITY OF HEATH. THE COST OF THE ABOVE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE WATER MAIN. THIS TESTING MUST BE IN ACCORDANCE WITH THE LATEST VERSION OF AWWA C-600.

**W11 - WATERLINE TESTING AND DISINFECTION CONTINUED**

ANY TESTING PERFORMED AGAINST EXISTING VALVES SHALL BE DONE AT THE CONTRACTOR'S RISK AND IN STRICT COMPLIANCE WITH THE REQUIREMENTS OF THE ENGINEER. IF SATISFACTORY TEST RESULTS CANNOT BE OBTAINED AGAINST AN EXISTING VALVE, THE NEW LINE SHALL BE DISCONNECTED FROM THE EXISTING LINE, PLUGGED AND RE-TESTED. DAMAGE CAUSED TO EXISTING LINES AND VALVES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE. IF THERE ARE INDICATIONS OF LEAKS UNDER THIS PRESSURE TEST, THE CONTRACTOR SHALL LOCATE AND REPAIR THEM AT HIS COST AND EXPENSE UNTIL THE LEAKAGE IS WITHIN THE SPECIFIED ALLOWANCE. ALL BENDS AND JOINT DEFLECTIONS SHALL HAVE CONCRETE BACKING. ALL ALL VALVES SHALL HAVE SUPPORTS AND BE IN ACCORDANCE WITH STANDARD DRAWINGS.

BEFORE BEING PLACED INTO SERVICE AND AFTER HYDROSTATIC TESTING, THE COMPLETED WATER WORK SHALL BE DISINFECTED IN ACCORDANCE WITH THE SPECIFICATIONS AND PROCEDURES OUTLINED IN THE LATEST VERSION OF AWWA C651 "STANDARD PROCEDURE FOR DISINFECTING WATER MAINS". ALL BACTERIA LOGICAL TESTING SHALL BE PERFORMED IN THE PRESENCE OF THE CITY. SHOULD THE INITIAL TREATMENT RESULT IN AN UNSATISFACTORY BACTERIAL TEST, THE ORIGINAL CHLORINATION PROCEDURE SHALL BE REPEATED BY THE CONTRACTOR AT HIS EXPENSE UNTIL SATISFACTORY RESULTS ARE OBTAINED.

THE CONTRACTOR SHALL HAND SWAB ALL PIPE AND FITTINGS THAT ARE NOT OTHERWISE DISINFECTED. THE AMOUNT OF CHLORINE TO BE USED DURING HAND SWABBING OPERATIONS WILL BE DETERMINED BY THE DIVISION OF WATER.

**W12 - CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES**

WHERE PLANS PROVIDE FOR A PROPOSED WATERLINE TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED WATERLINE.

IF IT IS DETERMINED THAT THE PROPOSED WATERLINE WILL INTERSECT A UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN OR ELEVATION DIFFERENCE WHEN CONNECTING NEW WATERLINE TO EXISTING WATERLINE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED WATERLINE WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING UTILITY.

**W13 - INSTALLATION AND CONFLICTS**

ALL WATER LINES SHALL BE INSTALLED WITH AT LEAST 10 FEET HORIZONTAL SEPARATION FROM SANITARY SEWER AND STORM SEWER LINES. WHENEVER A WATER LINE AND SEWER MUST CROSS, THE SEWER MAIN (STORM OR SANITARY) SHALL BE LAID SUCH THAT THE CROWN OF THE SEWER IS AT LEAST 18 INCHES BELOW THE INVERT OF THE WATER LINE MEASURED BETWEEN THE OUTSIDE PIPE WALLS. IN CASES WHERE THE REQUIRED SEPARATION CANNOT BE MAINTAINED, CLOSER INSTALLATION MAY BE PERMITTED ON A CASE-BY-CASE BASIS ONLY AFTER RECEIPT OF WRITTEN CONCURRENCE FROM THE OHIO EPA DIVISION OF DRINKING WATER. 2003 RECOMMENDED STANDARDS FOR WATER WORKS, SECTIONS 8.8.2 AND 8.8.3 SHALL GOVERN AS TO THE SEPARATION OF WATER LINE FROM CONTAMINATION SOURCES.

**W14 - VALVE EXTENSION**

IF THE TOP OF THE OPERATING NUT IS LOWER THAN 36 INCHES BELOW FINISHED GRADE, AN EXTENSION STEM SHALL BE FURNISHED TO BRING THE TOP OF THE OPERATING NUT TO BETWEEN 24 INCHES AND 36 INCHES OF FINISHED GRADE ELEVATION.

**W15 - SERVICE CONNECTIONS**

NO SERVICE CONNECTIONS SHALL BE MADE TO THE PUBLIC WATER SYSTEM WHERE A PROPERTY HAS A CROSS-CONNECTION TO AN AUXILIARY WATER SYSTEM. OWNER WILL INSPECT SERVICE LINES PRIOR TO PROVIDING SERVICE.

**W17 - MINIMUM PRESSURE**

A MINIMUM WATER PRESSURE OF 35 PSI SHALL BE MAINTAINED AT ALL SERVICE TAP LOCATIONS. A MINIMUM WATER PRESSURE OF 20 PSI SHALL BE MAINTAINED AT ALL POINTS OF THE SYSTEM.

**W18 - FLUSHING OF NEW LINE**

A MINIMUM WATER PRESSURE OF 35 PSI SHALL BE MAINTAINED AT ALL SERVICE TAP LOCATIONS. A MINIMUM WATER PRESSURE OF 20 PSI SHALL BE MAINTAINED AT ALL POINTS OF THE SYSTEM.

**W19 - CONCRETE COLLAR**

CONTRACTOR SHALL REFER TO HEATH STANDARD CONSTRUCTION DRAWING WA-3 FOR CONCRETE COLLARS TO BE PLACED AROUND VALVE BOXES.

**ITEM 638 - 6" FIRE HYDRANT ASSEMBLY TYPE 1, AS PER PLAN**

ALL WORK AND MATERIALS ASSOCIATED WITH ITEM 638 - 6" FIRE HYDRANT ASSEMBLY TYPE 1, AS PER PLAN SHALL BE INCLUDED IN THIS UNIT PRICE. WORK AND MATERIALS ARE INCLUDED BUT NOT LIMITED TO TEES, ELBOWS, TRACER WIRE, CONCRETE, 6" HYDRANT LEAD PIPE AND 6" WATCH VALVE.

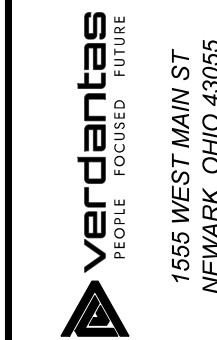
ALL HYDRANT LEADS SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE (CLASS 52) OR PVC, C-900 (DR-14). DUCTILE IRON PIPE SHALL BE CEMENT LINED WITH BITUMINOUS COATING, INSTALLED AS PER AWWA STANDARDS. ALL FITTINGS SHALL BE DUCTILE IRON, MECHANICAL JOINT AND SHALL COMPLY WITH AWWA SPECIFICATIONS. TAPPING SADDLES MUST BE EPOXY COATED OR 304 STAINLESS STEEL.

**ITEM 638 - WATER WORK, MISC.: 14" WATER MAIN HDPE, DR-11 DIPS, DIRECTIONAL DRILL**

ALL WORK AND MATERIALS ASSOCIATED WITH ITEM 638 - WATER WORK, MISC.: 14" WATER MAIN HDPE, DR-11 DIPS, DIRECTIONAL DRILL SHALL BE INCLUDED IN THIS UNIT PRICE. WORK AND MATERIALS ARE INCLUDED BUT NOT LIMITED TO TEES, ELBOWS, CONNECTION TO 12 INCH WATERLINE, TRACER WIRE AND REDUCERS.

ALL DIRECTIONAL DRILLED PIPE SHALL BE 14" HDPE, DR-11 DIPS.

DESIGN AGENCY



DESIGNER

MRO

REVIEWER

SRH 09/16/24

PROJECT ID

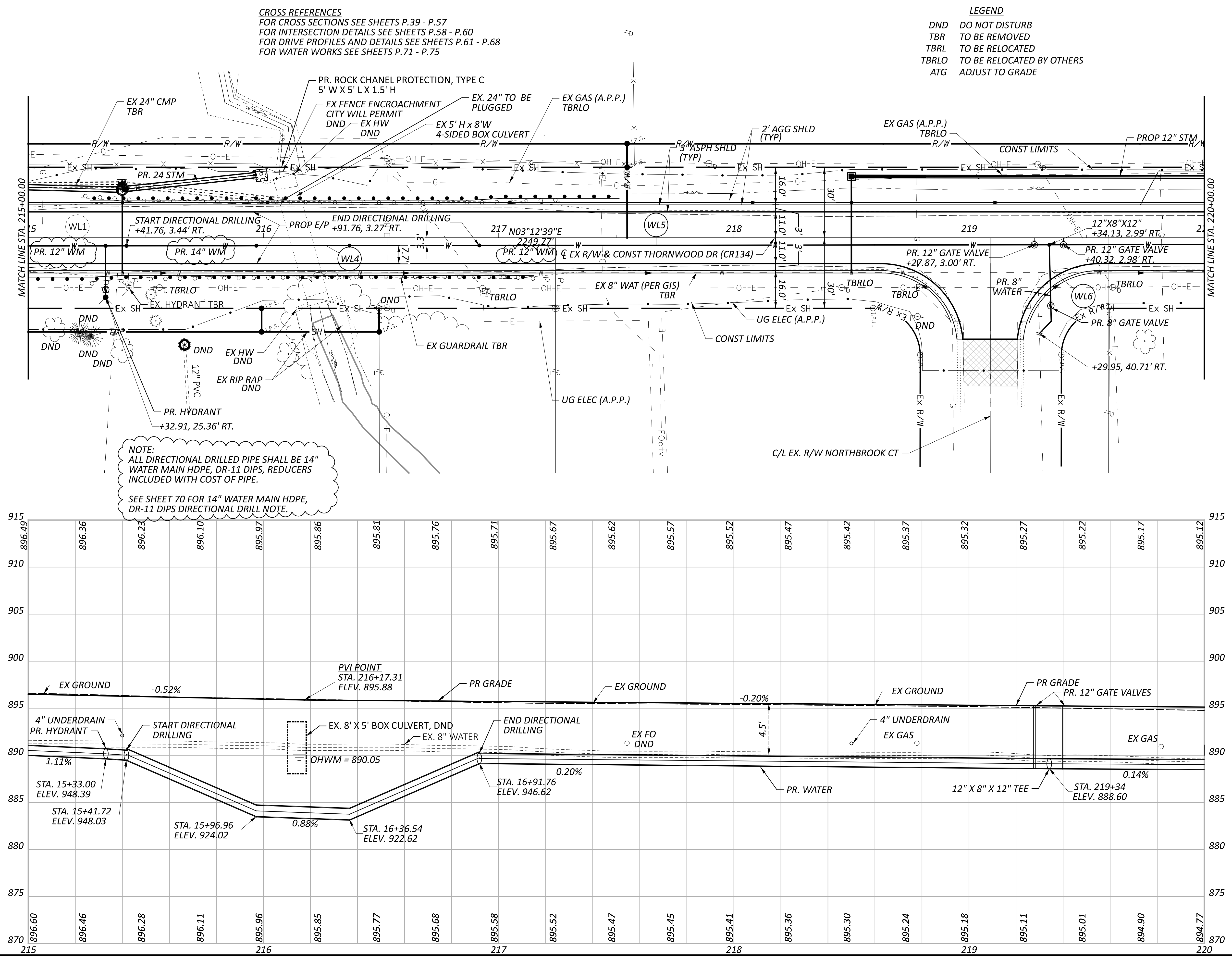
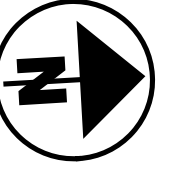
104794

SHEET TOTAL

P.70 P.91

**CROSS REFERENCES**  
 FOR CROSS SECTIONS SEE SHEETS P.39 - P.57  
 FOR INTERSECTION DETAILS SEE SHEETS P.58 - P.60  
 FOR DRIVE PROFILES AND DETAILS SEE SHEETS P.61 - P.68  
 FOR WATER WORKS SEE SHEETS P.71 - P.75

**LEGEND**  
 DND DO NOT DISTURB  
 TBR TO BE REMOVED  
 TBRL TO BE RELOCATED  
 TBRL0 TO BE RELOCATED BY OTHERS  
 ATG ADJUST TO GRADE



**PLAN AND PROFILE - WATER WORK**  
**STA 215+00 TO STA 220+00**

DESIGN AGENCY	<b>verdantas</b> INCORPORATED
DESIGNER	<b>MRO</b>
REVIEWER	<b>SRH</b>
PROJECT ID	<b>104795</b>
SHEET	<b>P.73</b>
TOTAL	<b>P.91</b>