

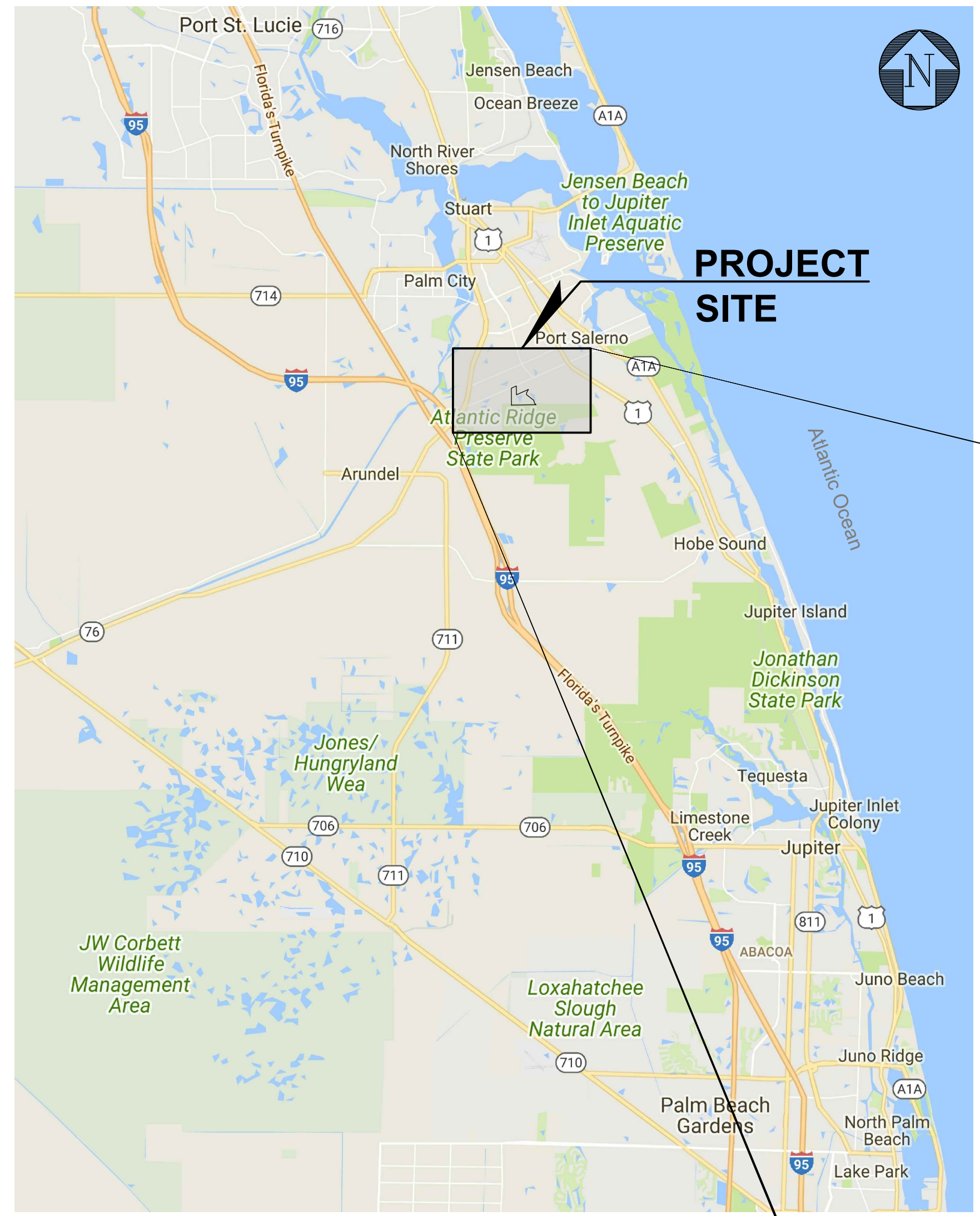
COVE ROYALE-PHASE I

PREPARED FOR

TLH-82 DOT, LLC

MARTIN COUNTY, FLORIDA

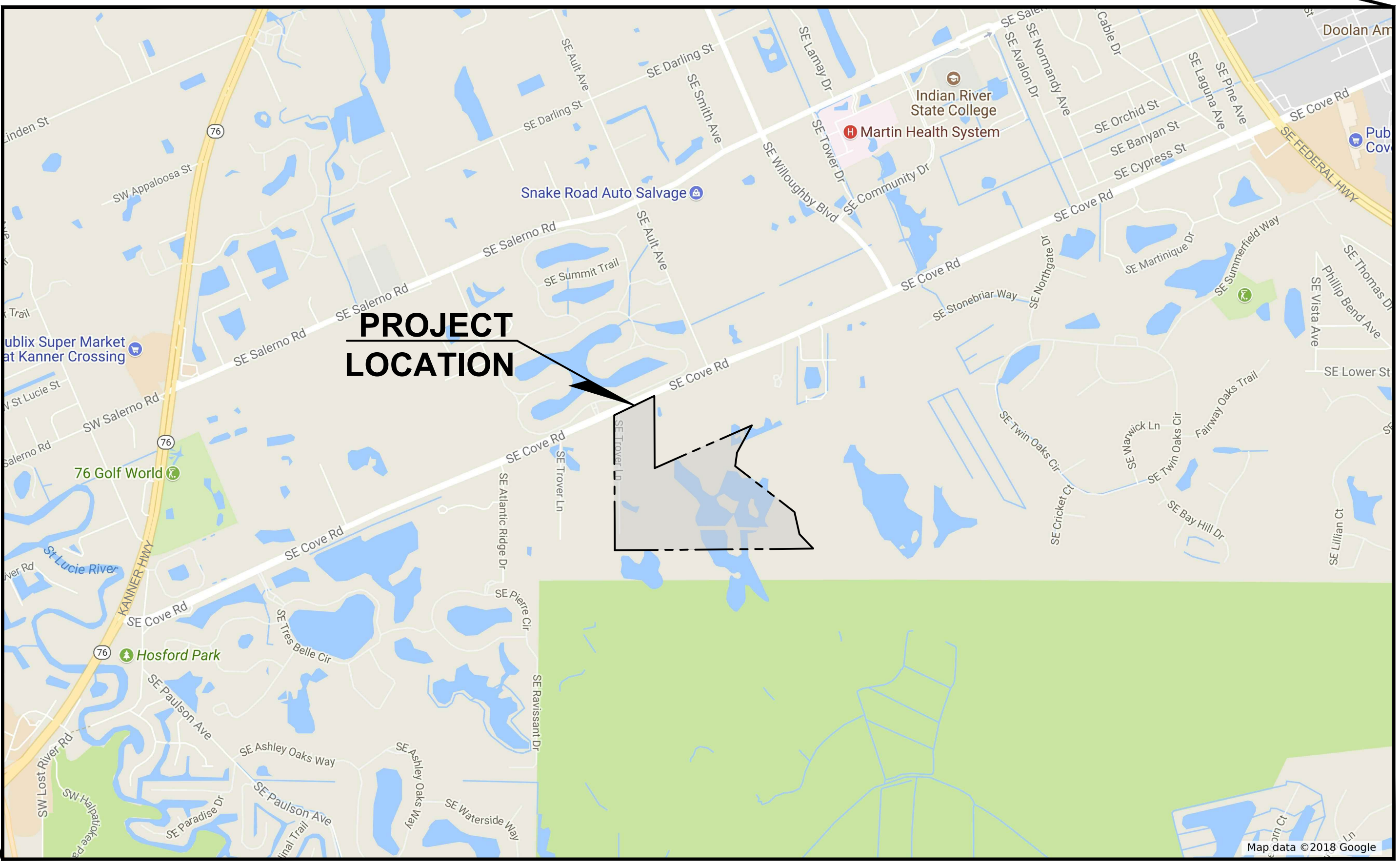
FEBRUARY 2020



SECTION 34, TOWNSHIP 38S, RANGE 41E

VICINITY MAP

NTS



INDEX-PAVING, GRADING

AND DRAINAGE PLANS

SHEET NO	SHEET TITLE
1	COVER SHEET
2	KEY SHEET MAP
3	GENERAL NOTES
4	DRAINAGE STRUCTURE TABLE
5	PAVING, GRADING AND DRAINAGE - OFFSITE
6	TYPICAL SECTIONS - OFFSITE
7	CROSS SECTIONS - OFFSITE
8	SIGN, MARKING AND PAVEMENT PLAN - OFFSITE
9	CLEARING AND EROSION CONTROL PLAN
10	CLEARING AND EROSION CONTROL PLAN
11	PAVING, GRADING AND DRAINAGE PLAN
12	PAVING, GRADING AND DRAINAGE PLAN
13	PAVING, GRADING AND DRAINAGE PLAN
14	PAVING, GRADING AND DRAINAGE PLAN
15	PAVING, GRADING AND DRAINAGE PLAN
16	CROSS SECTIONS
17	SIGN, MARKING AND PAVEMENT
18	SIGN, MARKING AND PAVEMENT
19	DRAINAGE DETAILS
20	DRAINAGE DETAILS
21	DRAINAGE DETAILS
22	DRAINAGE DETAILS

TOTAL NO OF SHEETS - 22

INDEX- WATER AND

SEWER PLANS

SHEET NO	SHEET TITLE
1	COVER SHEET
2	KEY SHEET & MASTER UTILITY MAP
3	WATER AND SEWER PLAN
4	WATER AND SEWER PLAN
5	WATER AND SEWER PLAN
6	WATER AND SEWER PLAN
7	WATER AND SEWER PLAN
8	WATER AND SEWER PROFILES
9	WATER AND SEWER PROFILES
10	WATER AND SEWER PROFILES
11	DIRECTIONAL BORE PROFILES
12	WATER AND SEWER DETAILS
13	WATER AND SEWER DETAILS
14	WATER AND SEWER DETAILS
15	WATER AND SEWER DETAILS
16	WATER AND SEWER DETAILS
17	WATER AND SEWER DETAILS
18	WATER AND SEWER DETAILS
19	WATER AND SEWER DETAILS

TOTAL NO OF SHEETS - 19



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REVISIONS	NO.	DATE	REMARKS	BY

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COVE ROYALE-PHASE I
TLH-82 DOT, LLC
MARTIN COUNTY, FLORIDA
COVER SHEET

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DATE	2020
DRAWN	ACS/YM
PROJECT ENGINEER	ACS
PROJECT MANAGER	ACS
CHECKED	ACS
1	22
JOB NO.	16042.02

[illegible]

Structure Table	
Structure Name	Structure Details
S-1	RIM = 17.47 INV IN = 10.80 INV OUT = 10.80
S-2	RIM = 17.47 INV IN = 10.80 INV OUT = 10.80
S-3	RIM = 15.69 INV IN = 10.80
S-4	RIM = 17.27 INV OUT = 13.36
S-5	RIM = 17.27 INV IN = 13.36 INV OUT = 13.36
S-6	RIM = 15.69 INV IN = 12.00
S-7	RIM = 17.27 INV OUT = 12.88
S-8	RIM = 17.27 INV IN = 12.88 INV OUT = 12.32
S-9	RIM = 15.69 INV IN = 12.32
S-10	RIM = 17.27 INV OUT = 12.32

Structure Table	
Structure Name	Structure Details
S-11	RIM = 17.27 INV IN = 12.32 INV OUT = 12.00
S-12	RIM = 15.69 INV IN = 12.00
S-13	RIM = 15.69 INV OUT = 13.98
S-14	RIM = 18.00 INV IN = 13.98 INV OUT = 13.88
S-15	RIM = 15.69 INV IN = 13.88
S-16	RIM = 17.28 INV IN = 10.18 INV OUT = 12.87
S-17	RIM = 17.27 INV IN = 12.87 INV OUT = 10.18 INV OUT = 9.13
S-18	RIM = 17.27 INV IN = 10.18
S-19	RIM = 17.28 INV IN = 9.13 INV OUT = 8.83
S-19A	RIM = 17.29 INV IN = 8.83 INV OUT = 8.83

Structure Table	
Structure Name	Structure Details
S-20	RIM = 15.69 INV IN = 8.83
S-21	RIM = 17.28 INV OUT = 13.50
S-22	RIM = 17.28 INV IN = 13.40 INV OUT = 13.40
S-23	RIM = 17.27 INV IN = 13.15 INV OUT = 13.03 INV OUT = 10.30
S-24	RIM = 17.27 INV IN = 13.06
S-25	RIM = 17.45 INV IN = 10.30 INV OUT = 10.30
S-26	RIM = 17.83 INV IN = 10.30 INV OUT = 10.30
S-27	RIM = 17.27 INV IN = 10.30 INV OUT = 12.00 INV OUT = 9.46
S-28	RIM = 17.27 INV IN = 12.20
S-29	RIM = 17.27 INV OUT = 12.72 INV OUT = 12.77

Structure Table	
Structure Name	Structure Details
S-30	RIM = 17.27 INV IN = 12.72
S-31	RIM = 17.87 INV IN = 12.77 INV OUT = 11.75 INV OUT = 11.00
S-32	RIM = 17.27 INV IN = 11.75 INV OUT = 12.83
S-33	RIM = 17.27 INV IN = 12.83
S-34	RIM = 17.27 INV IN = 11.00 INV OUT = 9.74 INV OUT = 13.00
S-35	RIM = 15.69 INV IN = 11.00
S-36	RIM = 17.28 INV IN = 13.00 INV OUT = 10.70
S-37	RIM = 18.00 INV IN = 10.60 INV OUT = 10.50
S-40	RIM = 15.69 INV IN = 10.50
S-41	RIM = 18.00 INV OUT = 12.90

Structure Table	
Structure Name	Structure Details
S-42	RIM = 14.69 INV IN = 11.00
S-43	RIM = 17.27 INV OUT = 13.70
S-44	RIM = 17.27 INV IN = 13.60 INV OUT = 12.50
S-45	RIM = 17.28 INV IN = 12.50 INV OUT = 12.50 INV OUT = 9.50
S-46	RIM = 17.29 INV IN = 9.50 INV OUT = 13.40 INV OUT = 9.90
S-47	RIM = 17.29 INV IN = 13.40
S-48	RIM = 17.27 INV IN = 9.90 INV OUT = 8.50 INV OUT = 11.00
S-49	RIM = 17.27 INV IN = 8.50 INV OUT = 11.00
S-50	RIM = 15.69 INV IN = 11.00
S-51	RIM = 17.73 INV IN = 11.00 INV OUT = 12.00

Structure Table	
Structure Name	Structure Details
S-52	RIM = 18.00 INV IN = 12.00 INV OUT = 13.00
S-53	RIM = 15.75 INV IN = 13.00
S-81	RIM = 13.69 INV OUT = 7.85
S-82	RIM = 13.69 INV IN = 7.85
S-85	RIM = 17.27 INV IN = 9.46 INV OUT = 12.50 INV OUT = 11.10
S-86	RIM = 15.69 INV IN = 10.40
S-87	RIM = 17.27 INV IN = 13.00
S-88	RIM = 16.40 INV OUT = 10.85
S-89	RIM = 15.69 INV OUT = 10.18
S-90	RIM = 15.69 INV OUT = 12.50 INV OUT = 12.50

Structure Table	
Structure Name	Structure Details
S-91	RIM = 18.00 INV IN = 12.50 INV OUT = 12.50
S-92	RIM = 15.69 INV IN = 12.50



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JOB NO.		FEBRUARY 2020	
4 22	DATE	ACS/YM	
	DRAWN	ACS	
	PROJECT ENGINEER	ACS	
	PROJECT MANAGER	ACS	
		CHECKED	ACS

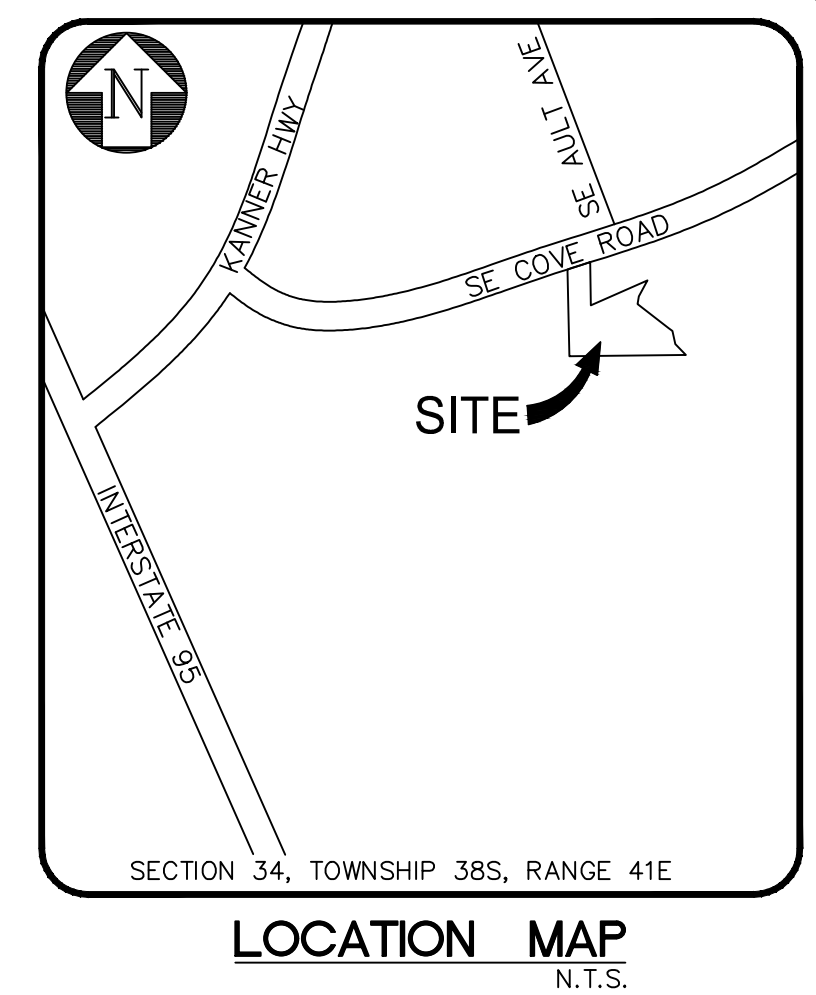


COVE ROYALE-PHASE I
TLH-82 DOT, LLC
MARTIN COUNTY, FLORIDA
DRAINAGE STRUCTURE TABLE

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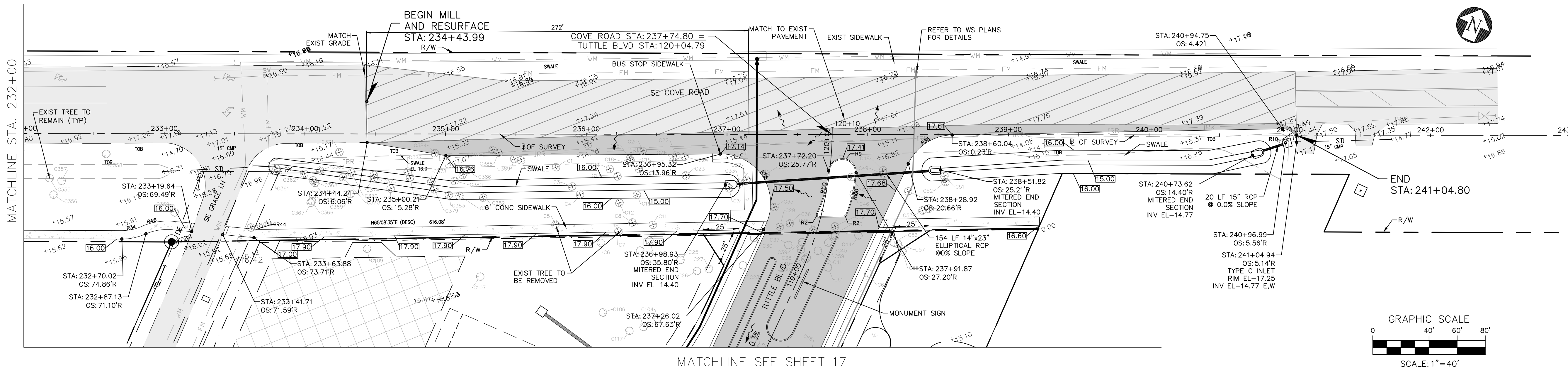
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DATE	FEBRUARY 2020
DRAWN	ACS/YM
PROJECT ENGINEER	ACS
PROJECT MANAGER	ACS
CHECKED	ACS

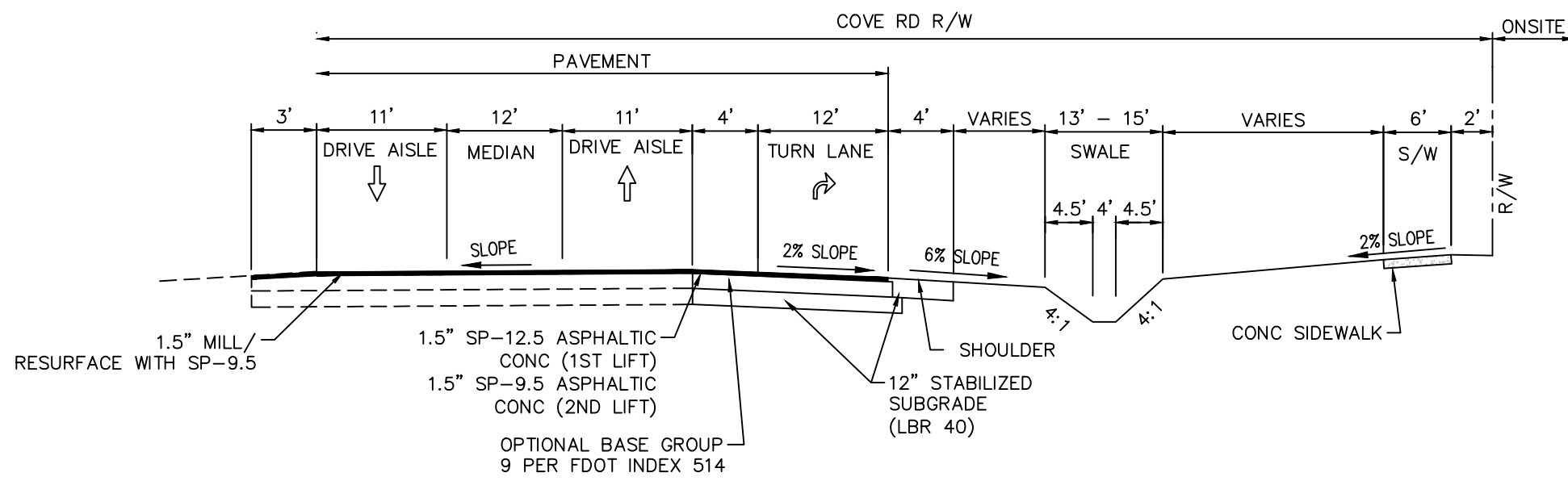
SHEET NO. 5 22
JOB NO. 16042.02



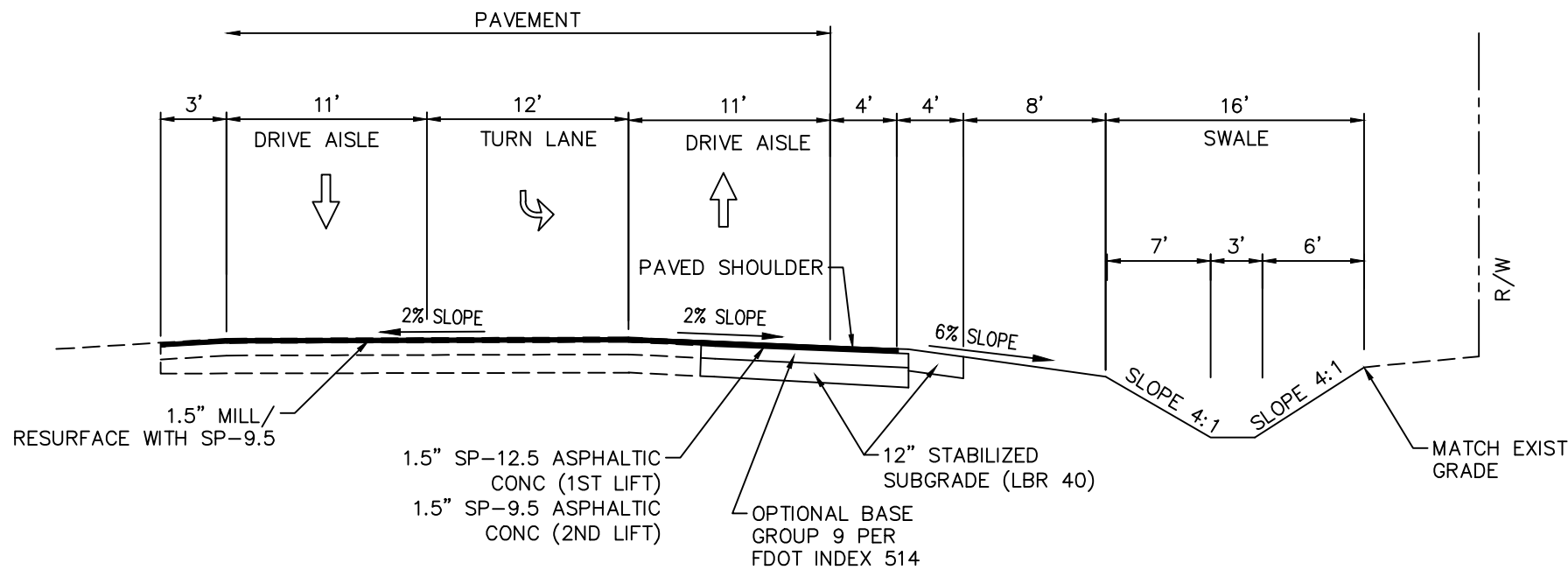
MATCHLINE SEE SHEET 17



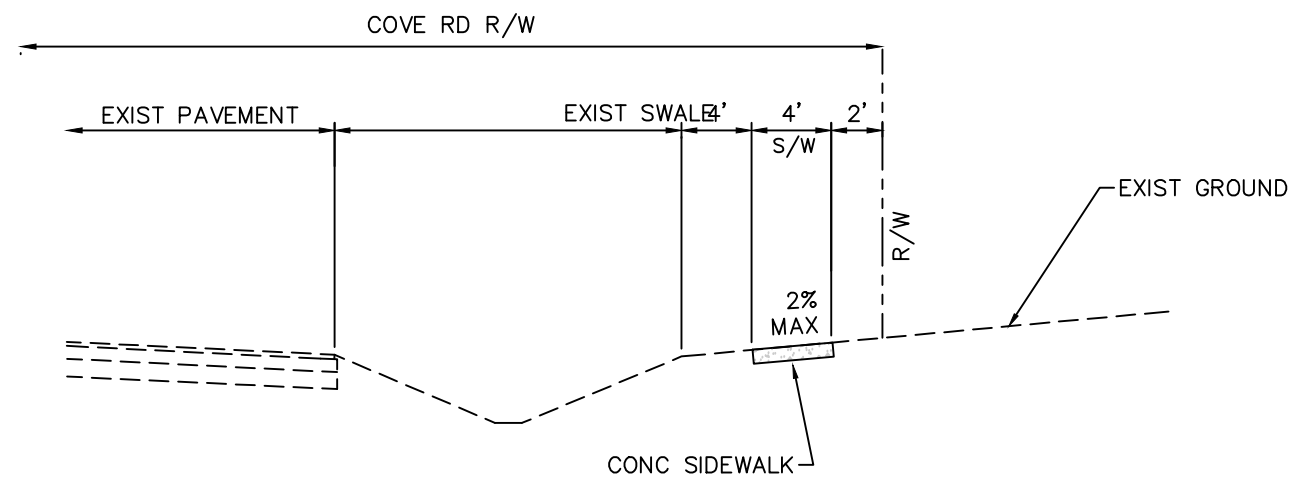
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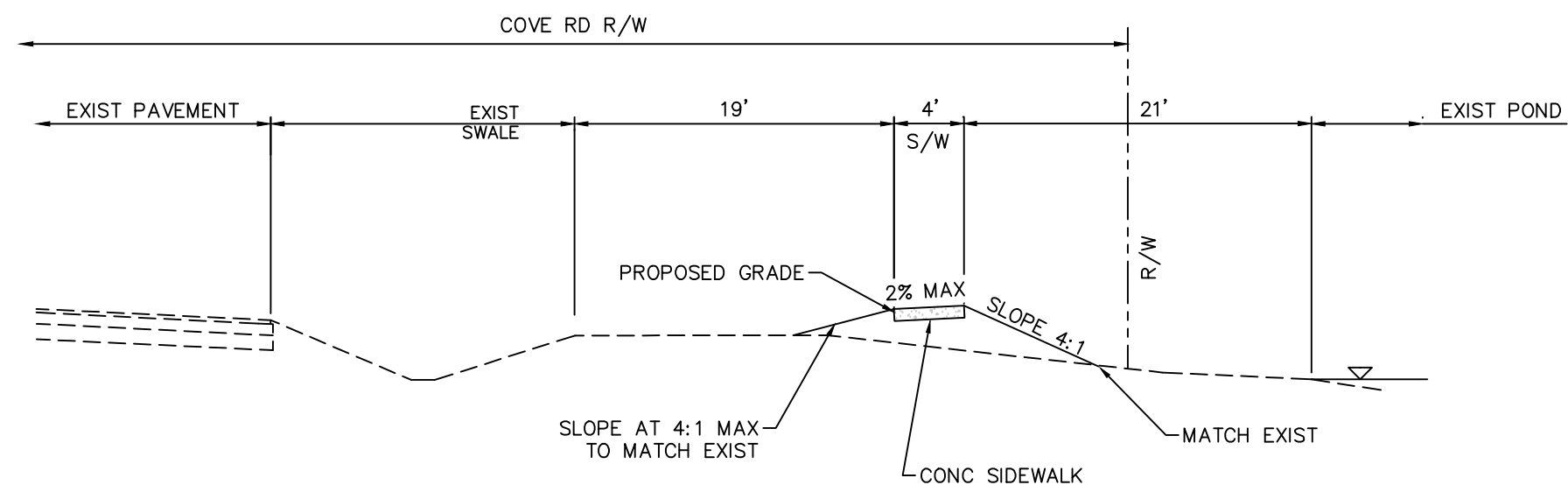
1
6 TYPICAL SECTION - RIGHT TURN LANE
NTS



2
6 TYPICAL SECTION - LEFT TURN LANE
NTS



3
6 TYPICAL SECTION - STA: 220+00 - STA: 221+00
NTS



4
6 TYPICAL SECTION - STA: 223+00 - STA: 224+00
NTS



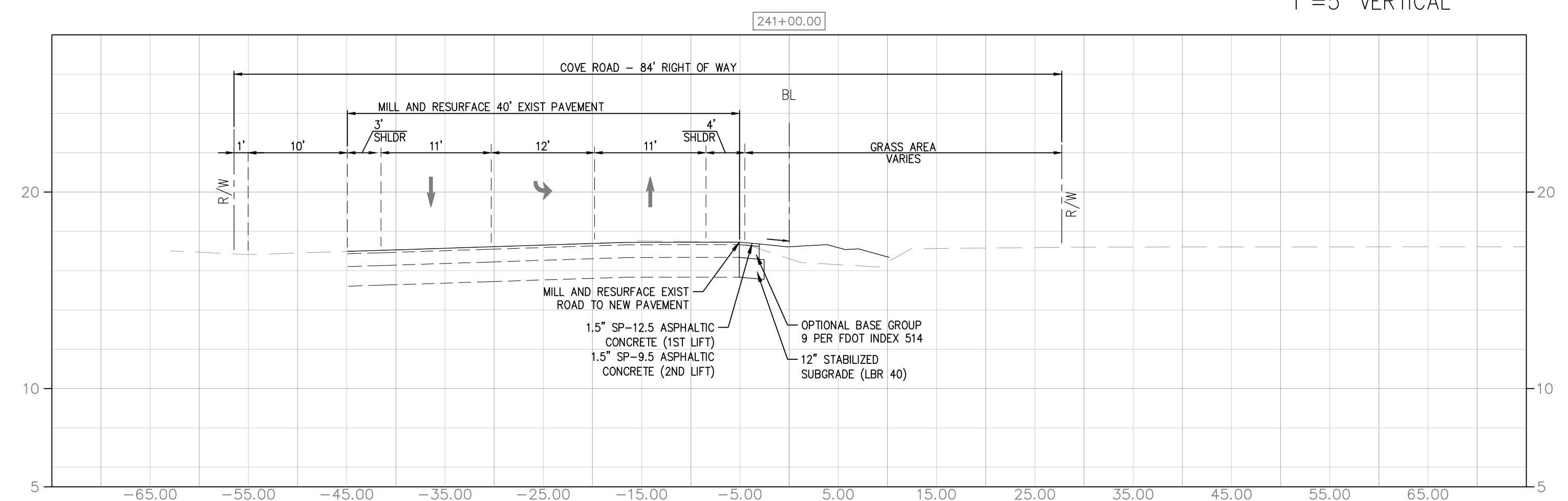
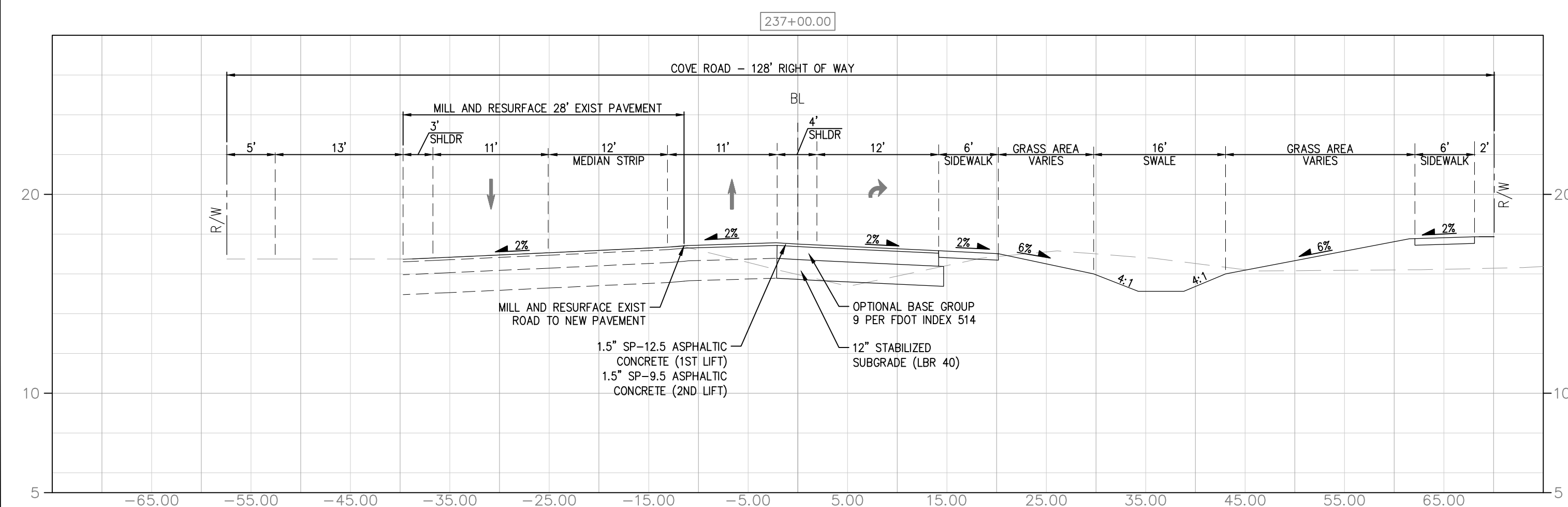
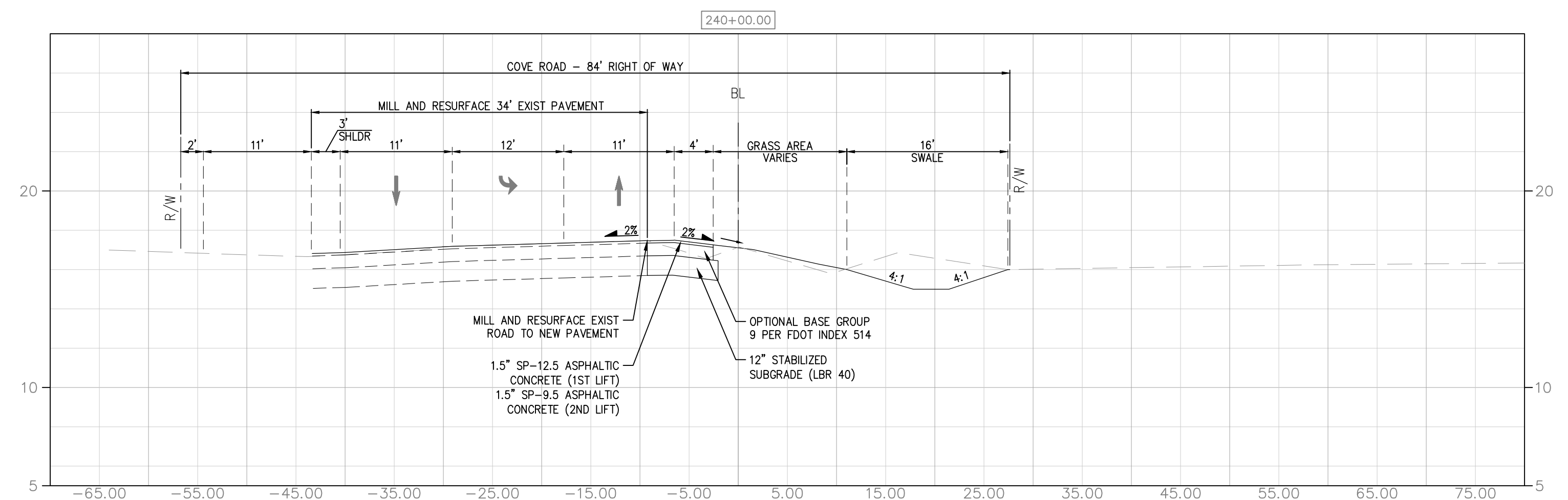
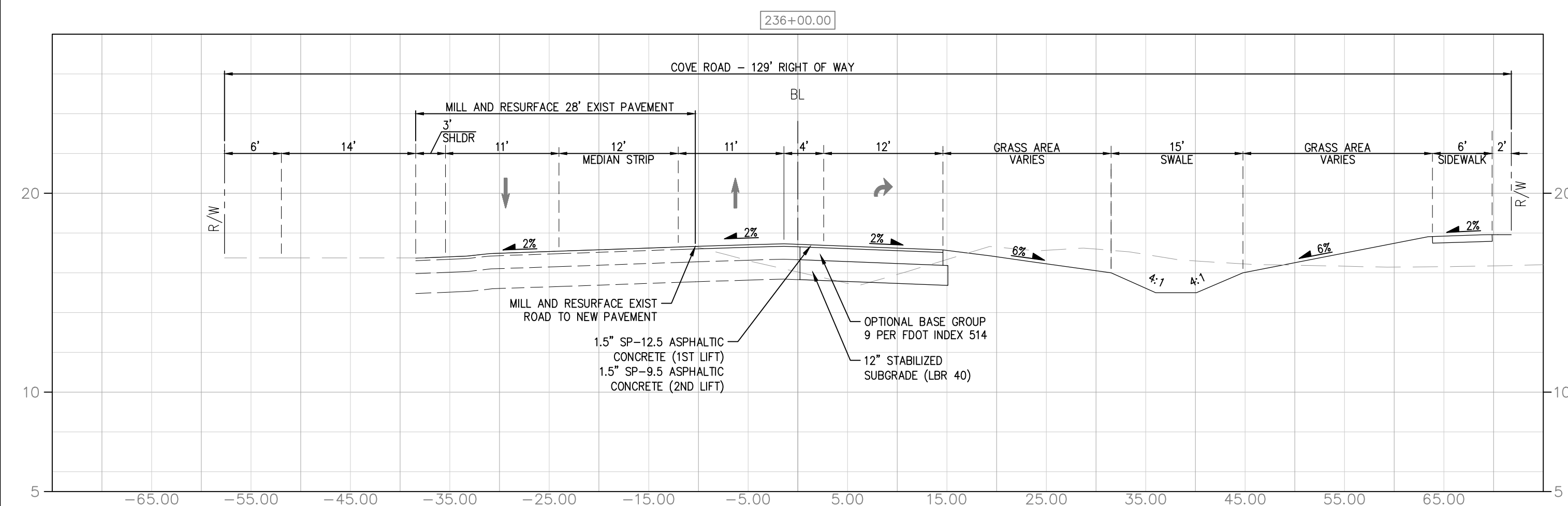
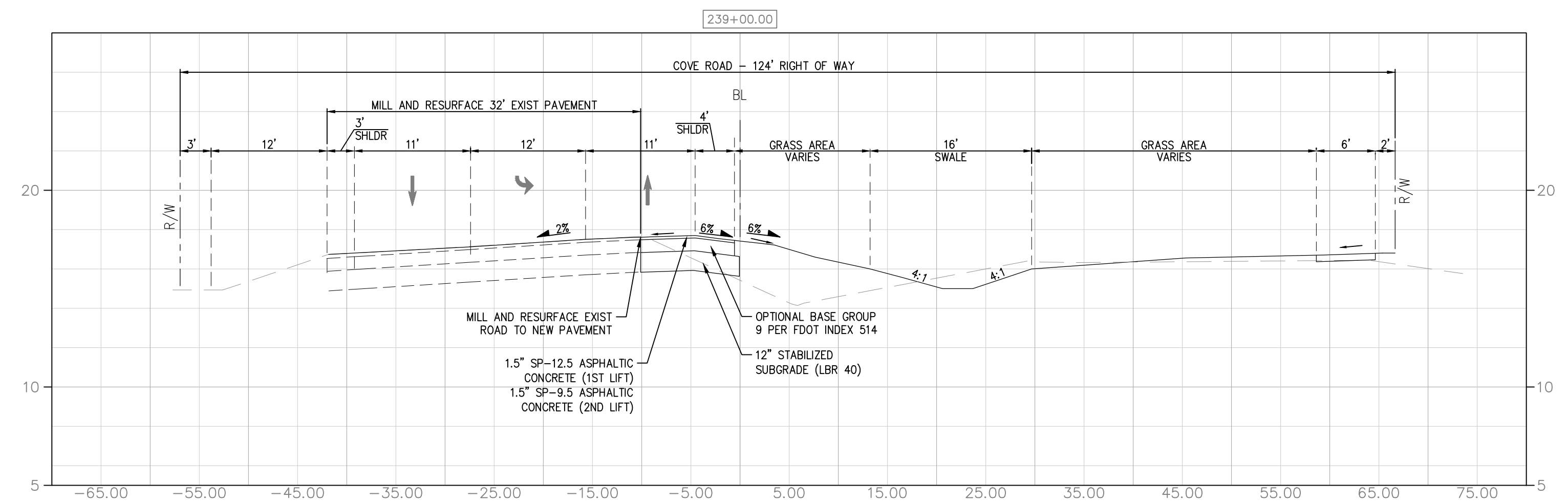
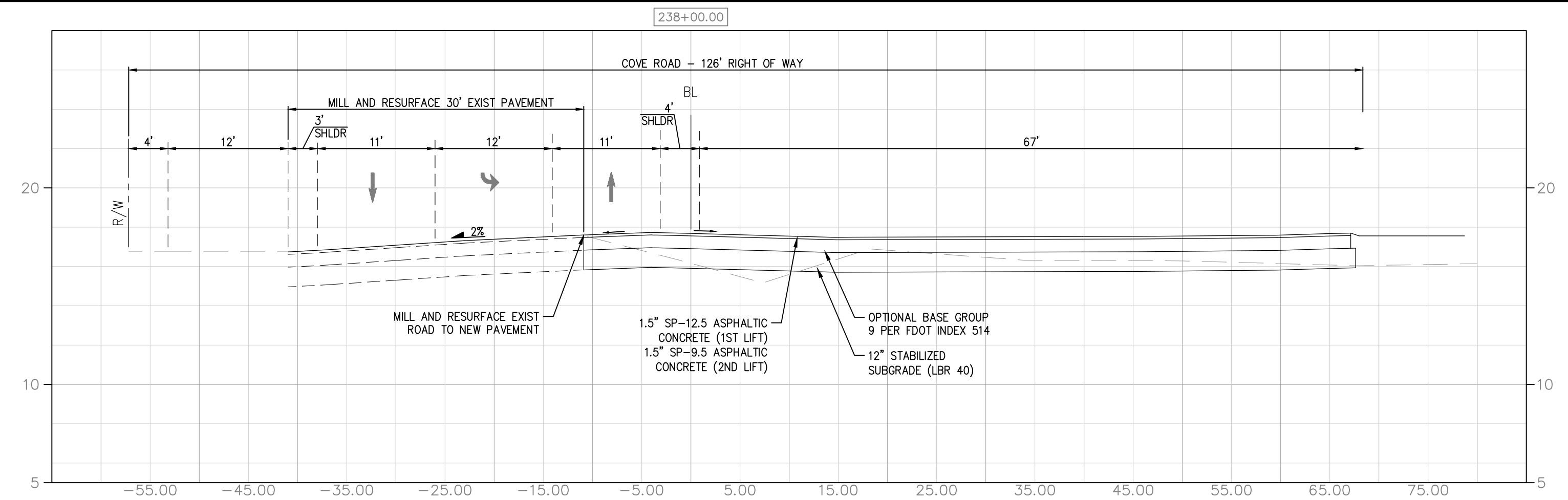
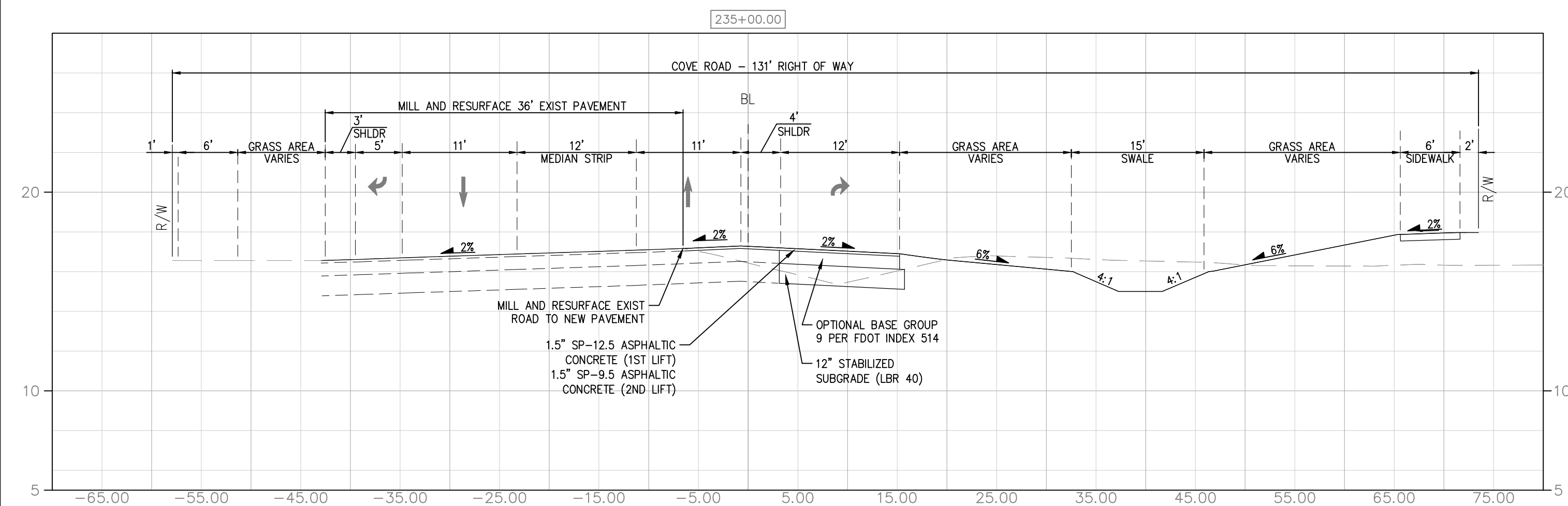
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COVE ROYALE-PHASE I TLH-82 DOT, LLC MARTIN COUNTY, FLORIDA TYPICAL SECTIONS - OFFSITE	
--	--

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J:\Land Projects\2016\2016-02 Cove Royale\DWG\16042.02_SHT-04_CS-FOG.dwg DATE: 10/16/2018 12:41 PM		FEBRUARY 2020	
DATE	DRAWN	PROJECT	ACS/YM
6	6	PROJECT	ACS
22	22	PROJECT	ACS
JOB NO.		16042.02	



SCALE:
1"=10' HORIZONTAL
1"=5' VERTICAL

REVISIONS		
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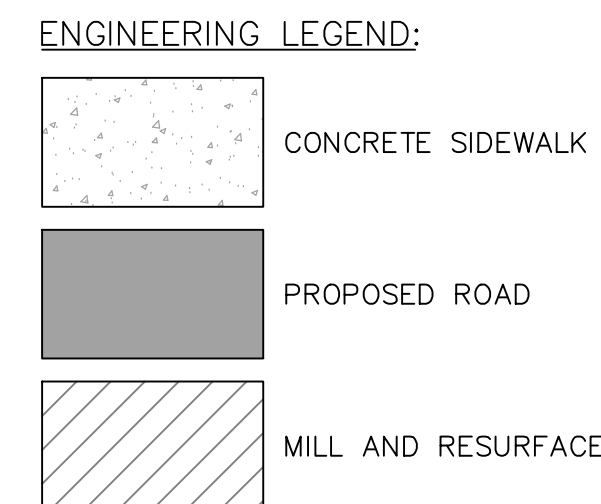
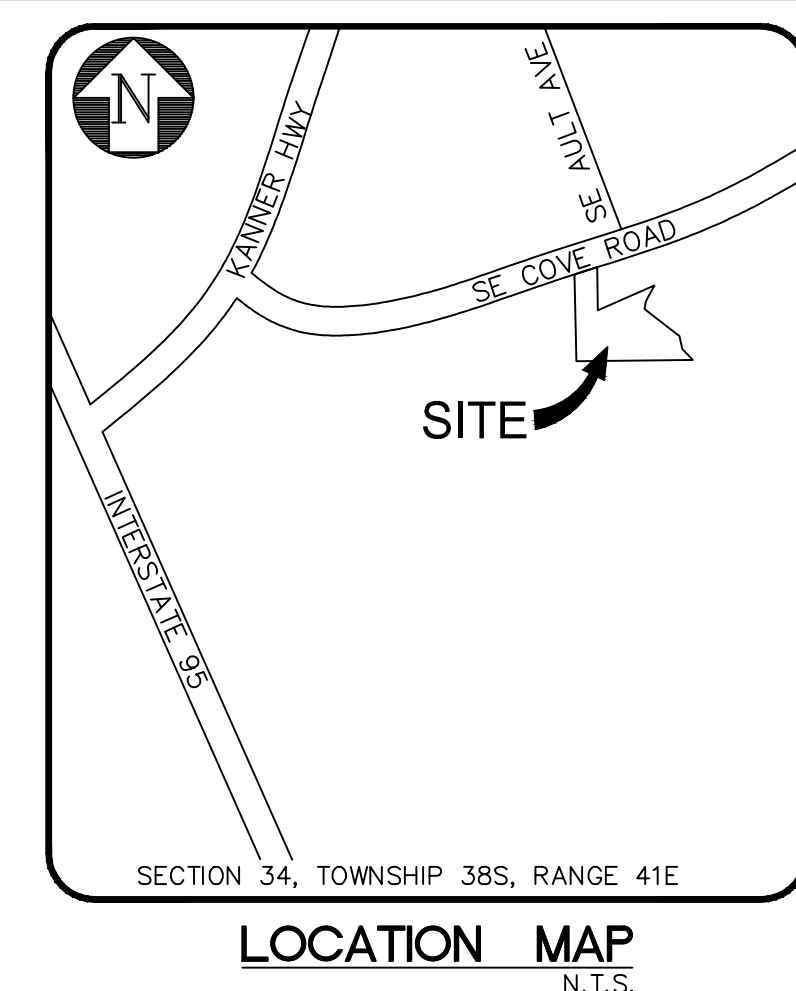
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MARTIN COUNTY, FLORIDA
CROSS SECTIONS - OFFSITE



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7 22 JOB NO. 16042.02	DATE	FEBRUARY 2020
	DRAWN	ACS/YM
	PROJECT ENGINEER	ACS
	PROJECT MANAGER	ACS
	CHECKED	ACS

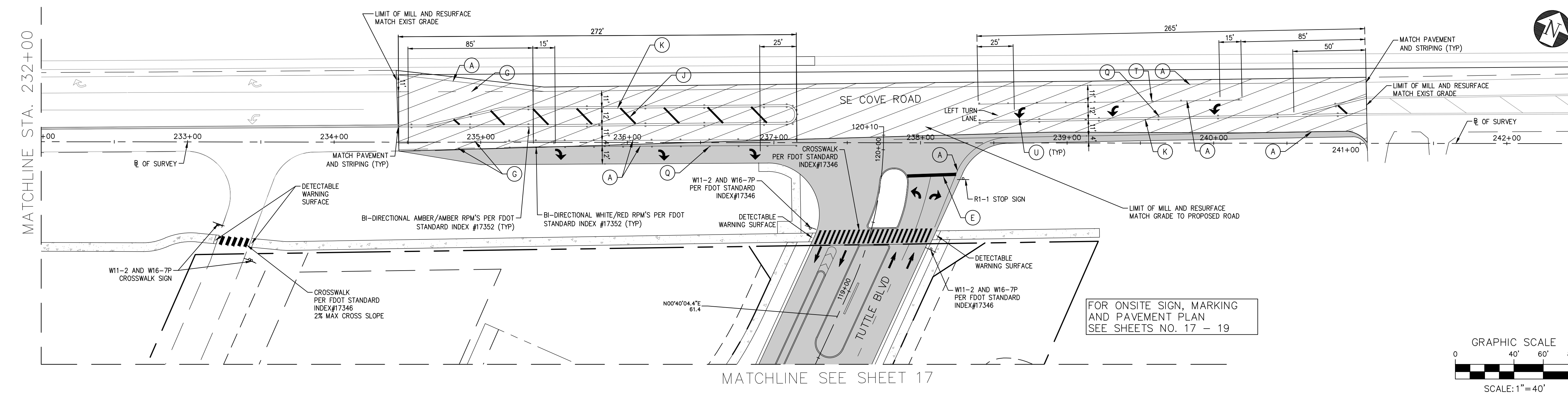


GENERAL NOTE:

1. ALL ELEVATIONS ARE REFERENCED TO THE 1988 NORTH AMERICAN VERTICAL DATUM, (NAVD).
2. TOPOGRAPHIC SURVEY PERFORMED BY ENGENUITY GROUP.
3. ALL STRIPING SHALL BE THERMOPLASTIC.
4. ALL SIGNAGE AND STRIPING SHALL MEET FDOT AND MARTIN COUNTY REQUIREMENTS.

STRIPING KEY			
DESIGNATION	SIZE	LINETYPE	COLOR
A	6"	SOLID	WHITE
B	8"	SOLID	WHITE
C	12"	SOLID	WHITE
D	18"	SOLID	WHITE
E	24"	SOLID	WHITE
F	6"	SKIP (10' - 30')	WHITE
G	6"	SKIP (6' - 10')	WHITE
H	6"	SKIP (2' - 4')	WHITE
I	6"	SOLID	YELLOW
J	18"	SOLID	YELLOW
K	6"	DOUBLE	YELLOW
L	6"	SKIP (10' - 30')	YELLOW
M	6"	SKIP (6' - 10')	YELLOW
N	6"	SKIP (2' - 4')	YELLOW
P	RPM	MONO-DIRECTIONAL	WHITE / CLEAR
Q	RPM	BI-DIRECTIONAL	AMBER / AMBER
R	---	FDP	WHITE
S	---	FDP	YELLOW
T	RPM	BI-DIRECTIONAL	WHITE / RED
U	---	DIRECTIONAL ARROW	---

ALL PAVEMENT MARKINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE ROADWAY AND TRAFFIC DESIGN STANDARDS (FDOT).



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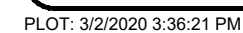
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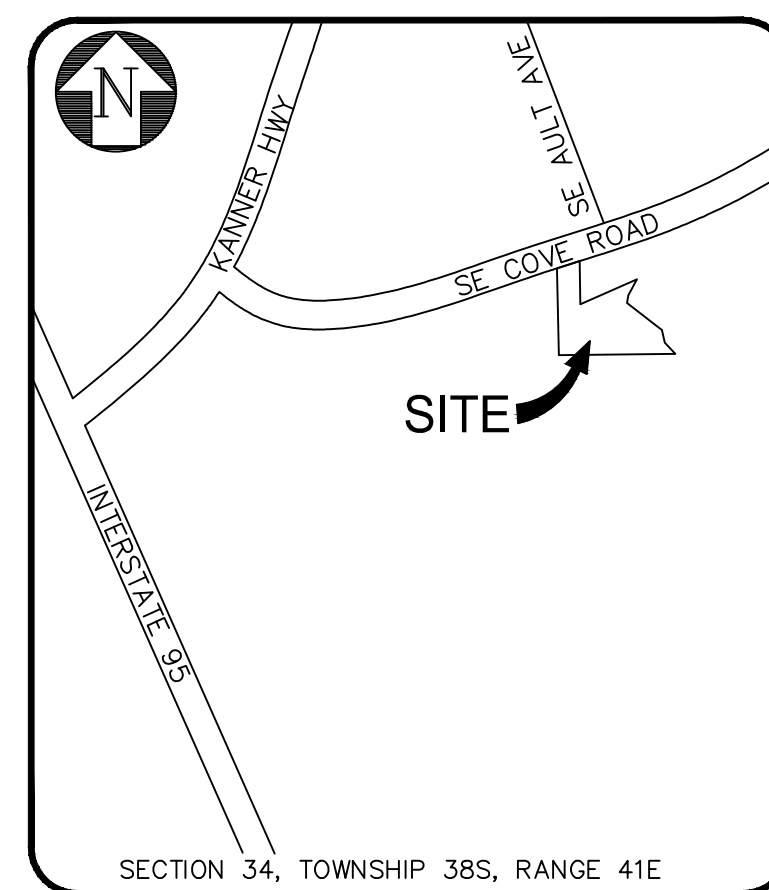
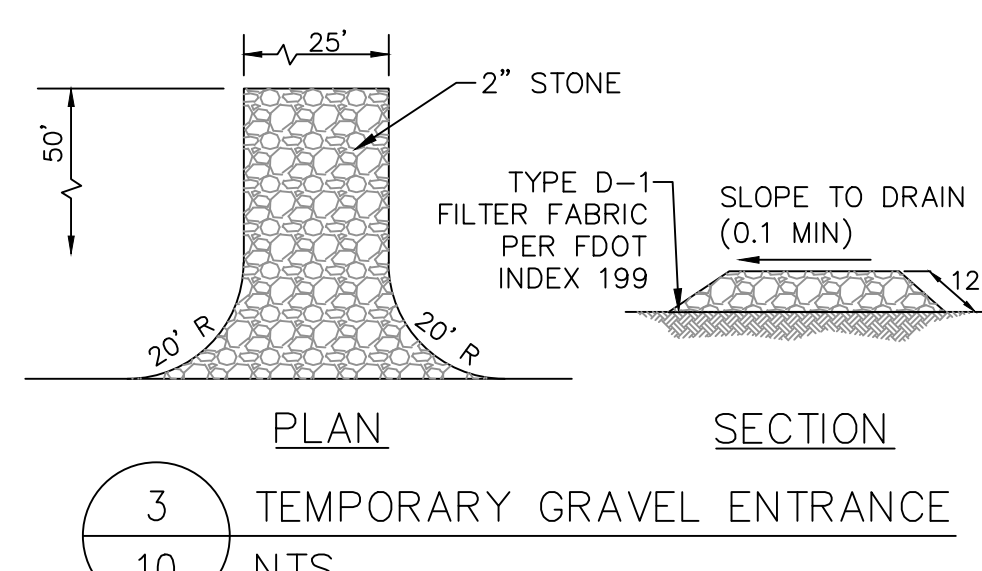
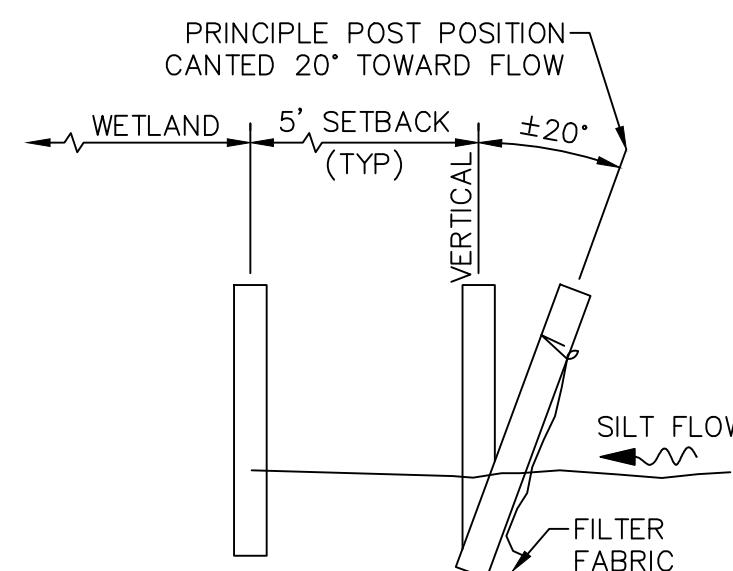
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TLH-82 DOT, LLC
MARTIN COUNTY, FLORIDA
SIGN, MARKING AND PAVEMENT PLAN - OFFSITE

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JOB NO.		FEBRUARY 2020	
16042.02		DATE	ACS/YM
<div style="display: flex; justify-content: space-between;"> <div> <div>8</div> <div>22</div> </div> <div> <div>PROJECT ENGINEER</div> <div>PROJECT MANAGER</div> <div>CHECKED</div> </div> </div>		ACS	ACS
		ACS	ACS
		ACS	ACS
		ACS	ACS

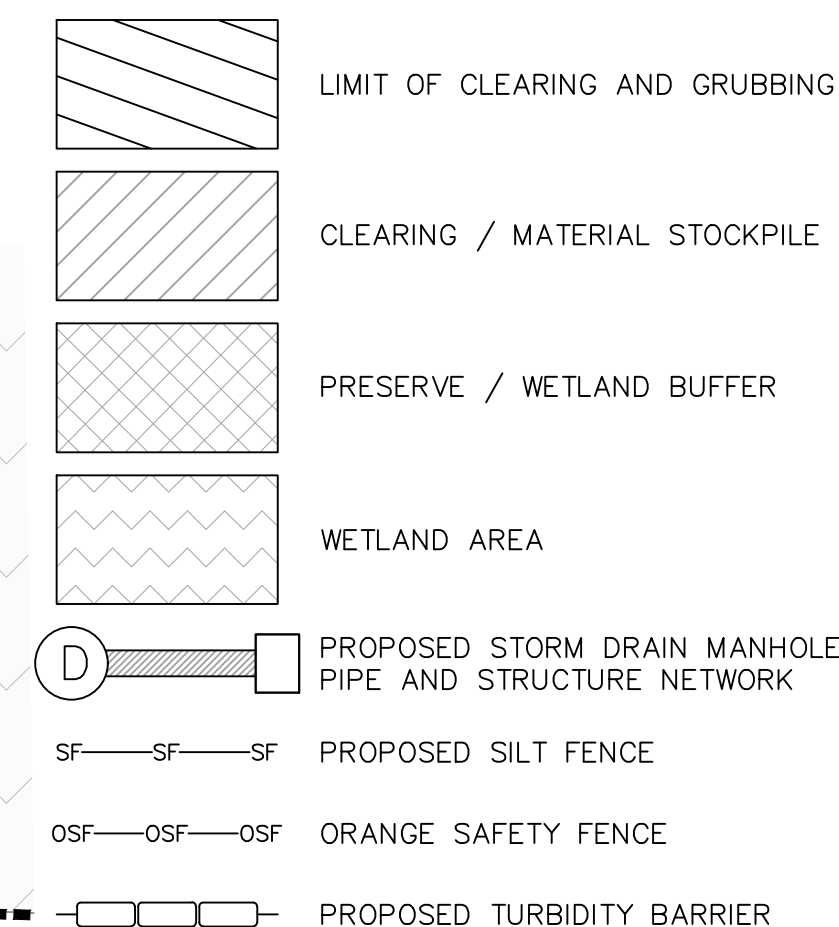




LOCATION	MAF
	N.T.S.

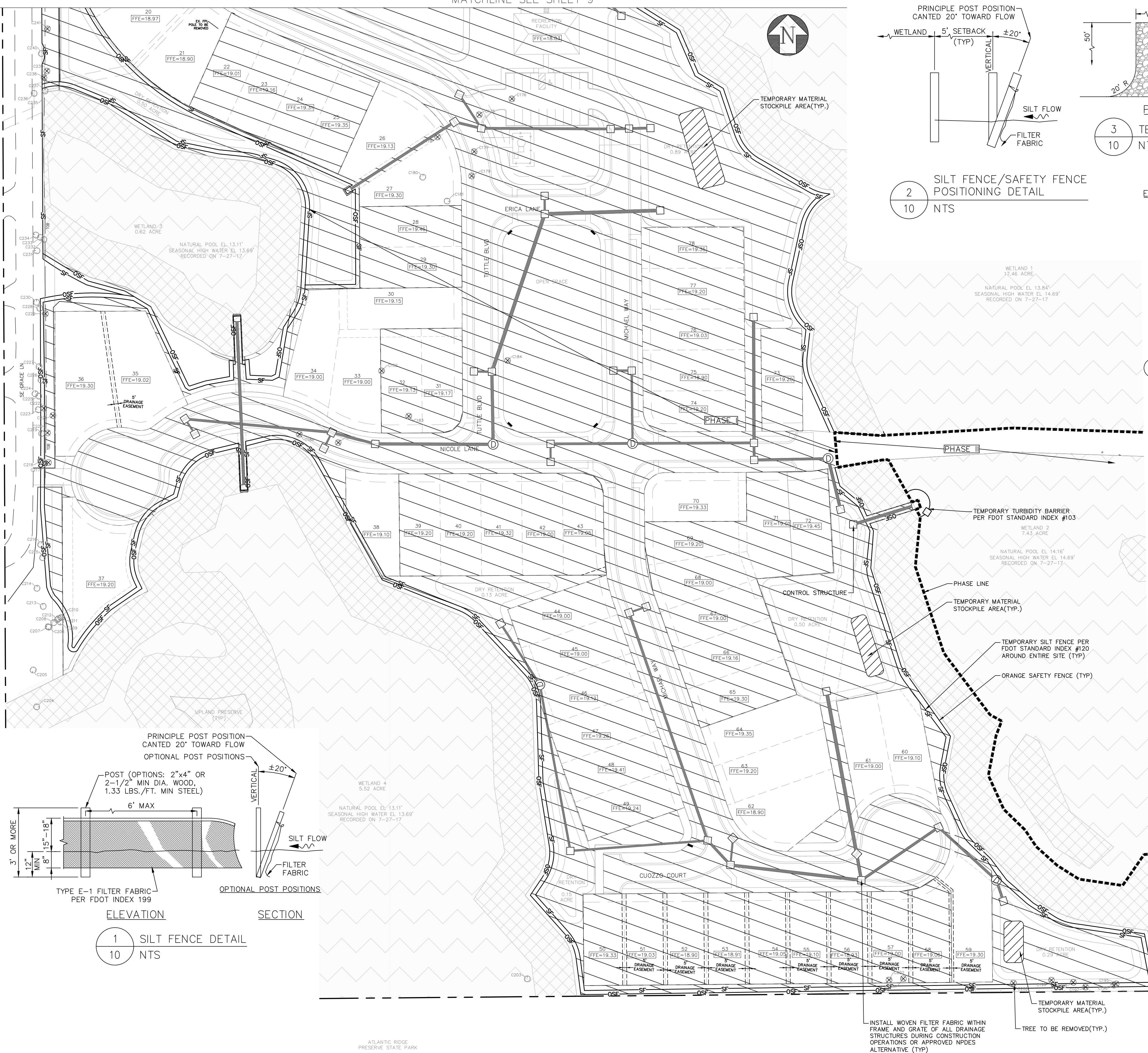


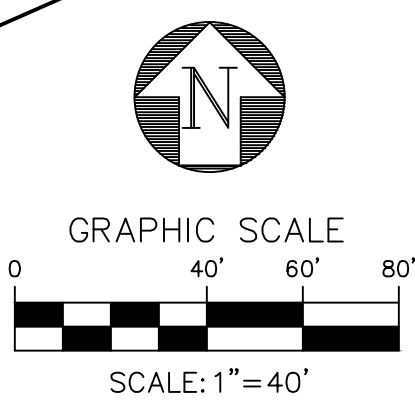
ENGINEERING LEGEND:



GENERAL NOTES:

- ALL ELEVATIONS ARE REFERENCED TO THE 1988 NORTH AMERICAN VERTICAL DATUM, (NAVD).
2. PROVISIONS FOR CONTROL OF POLLUTION:
 - A. SUFFICIENT PRECAUTIONS SHALL BE TAKEN DURING CONSTRUCTION TO PREVENT THE RUN-OFF OF POLLUTING SUBSTANCES SUCH AS SILT, CLAY, FUELS, OILS, BITUMEN OR OTHER POLLUTING MATERIALS HARMFUL TO HUMANS, FISH, OR OTHER LIFE, INTO THE SUPPLIES AND SURFACES OF THE STATE OF FLORIDA. CONTROL MEASURES MUST BE ADEQUATE TO PREVENT THAT TURBIDITY AND EXCESSIVE WATER RUNOFF FROM CONSTRUCTION AREAS EXCEEDS THAT WHICH IS ALLOWED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) THROUGH THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT OPERATIONS WHICH PROMOTE EROSION. EROSION EVENT WITHIN THE LIMITS OF CONSTRUCTION OR OTHER AREAS AFFECTED BY THE CONTRACTOR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
 - B. FILL OUT A NOTICE OF INTENT FORM (FDEP FORM 62-621.300(4)(B)) AND SUBMIT IT TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION.
 - C. EXCAVATION OF WATER MANAGEMENT FACILITIES SHOULD OCCUR IMMEDIATELY AFTER CLEARING AND GRUBBING TO SERVE AS A SEDIMENT TRAP OR CATCHMENT FOR STORMWATER RUNOFF FROM EXPOSED SOILS.
 - D. CONSTRUCT PERIMETER BERM OR GRADE SITE TO PREVENT OFF-SITE DISCHARGE OF STORMWATER RUNOFF.
 - E. SILT FENCE OR SILT FENCE OR BERM MUST CONTAIN EROSION IN AREAS PRONE TO STORMWATER RUNOFF ERODIVE VELOCITIES.
 - F. PROTECT EACH INLET THAT MAY RECEIVE RUNOFF FROM THE CONSTRUCTION SITE WITH SILT FENCE/FILTER FABRIC STAKED IN PLACE.
 - G. INSTALL TURBIDITY SCREENS WITHIN THE RECEIVING BODY BEFORE COMMENCEMENT OF BANK IMPROVEMENTS AND OUTFALL INSTALLATION.
 - H. TAKE ALL REASONABLE PRECAUTIONS TO CONTROL DUST AND UNCONFINED PARTICULATE MATTER. THE APPLICATION OF WATER IS AN ACCEPTABLE DUST SUPPRESSANT ON ROADWAYS, STOCKPILES, AND ANY OTHER AREAS WITHIN THE PROJECT BOUNDARIES. DUST SUPPRESSANT WATER SHALL BE APPLIED IN SUCH A MANNER SO AS NOT TO PRODUCE EXCESS EROSION AND EROSION CONTROL MEASURES.
 - I. TURBIDITY IN RECEIVING WATER SHALL NOT BE INCREASED MORE THAN 29 NEPHELOMETRIC TURBIDITY UNITS (NTU) ABOVE BACKGROUND.
 - J. TAKE PRECAUTIONS IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT OPERATIONS WHICH PROMOTE EROSION.
3. OTHER CONTROLS AND MATERIAL MANAGEMENT PRACTICES:
 - A. FERTILIZERS - APPLY FERTILIZERS ONLY IN THE MINIMUM AMOUNT RECOMMENDED BY THE MANUFACTURER. IF STORED ON-SITE, PROVIDE COVERED STORAGE. TRANSFER THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER TO A SEALABLE CONTAINER TO AVOID SPILLS.
 - B. HAZARDOUS WASTE - DISPOSE OF IN A MANNER SPECIFIED BY LOCAL OR STATE REGULATIONS.
 - C. NOISE - MINIMIZE NOISE CAUSED BY THE OPERATION OF EQUIPMENT. ABIDE BY ALL LOCAL REGULATIONS COVERING NOISE CONTROL.
 - D. ODORS - DO NOT CAUSE OBJECTIONABLE ODORS TO BE GENERATED.
 - E. OFFSITE VEHICLE TRACKING - PROVIDE A ROCK CONSTRUCTION ENTRANCE TO REDUCE VEHICLE TRACKING OF SEDIMENTS. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE SHALL BE COVERED WITH A TARPULIN.
 - F. OPEN BURNING - NO OPEN FIRES OR BURNING OF MATERIALS OTHER THAN VEGETATIVE LAND CLEARING DEBRIS. OBTAIN PRIOR APPROVAL TO BURN FROM THE LOCAL AUTHORITY AND APPLICABLE FIRE MARSHALL.
 - G. PAINTS - ALL CONTAINERS SHALL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT SHALL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM, BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO THE PAINT MANUFACTURER'S INSTRUCTIONS AND STATE OR LOCAL REGULATIONS.
 - H. PESTICIDES AND HERBICIDES - ANY PESTICIDE AND HERBICIDE USAGE WILL BE BY STATE LICENSED APPLICATORS.
 - I. PETROLEUM PRODUCTS - MONITOR ON-SITE VEHICLES AND TANKS FOR LEAKS. THEY SHALL RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. STORE PETROLEUM PRODUCTS IN TIGHTLY SEALED CONTAINERS, WHICH ARE CLEARLY LABELED. USE SPILLALERT CONTAINERS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. PROVIDE SECONDARY CONTAINMENT FOR ALL ABOVE GROUND FUEL TANKS.
 - J. SANITARY WASTE - COLLECT ALL SANITARY WASTE FROM THE PORTABLE UNITS AT LEAST TWICE PER WEEK.
 - K. WASTE MATERIALS - COLLECT AND STORE ALL WASTE MATERIALS IN A SECURELY COVERED METAL DUMPMSTER PROVIDED BY A LICENSED SOLID WASTE MANAGEMENT COMPANY. DEPOSIT ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE IN THE DUMPMSTER. THE DUMPMSTER IS TO BE EMPTIED AS NEEDED SO THERE IS NO OVERFLOW. HAUL TRASH TO A STATE APPROVED LANDFILL FACILITY.
4. MAINTENANCE / INSPECTION PROCEDURES:
 - A. INSPECT ALL CONTROL MEASURES AT LEAST ONCE PER WEEK AND FOLLOWING ANY STORM EVENT OF 0.5 INCHES OR GREATER.
 - B. MAINTAIN ALL MEASURES IN GOOD WORKING ORDER. IF A REPAIR IS NECESSARY, IT MUST BE INITIATED WITHIN 24 HOURS OF THE ON-SITE INSPECTION REPORT.
 - C. REMOVE SILT FENCE / SEDIMENT FROM SILT FENCE WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE FENCE.
 - D. INSPECT SILT FENCE FOR DEPTHS OF SEDIMENT, TEARS, TO SEE IF THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS, AND TO SEE THAT THE FENCE POSTS ARE FIRMLY IN THE GROUND.
 - E. PREPARE A MAINTENANCE INSPECTION REPORT AFTER EACH INSPECTION. A COPY OF THE REPORT FORM TO BE COMPLETED BY THE INSPECTOR IS FOUND AT THE END OF THIS SECTION.
 - F. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FOLLOWING: BE RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND COMPLETING THE INSPECTION AND MAINTENANCE REPORTS.
 - G. NON-STORMWATER DISCHARGES ARE PERMISSIBLE PROVIDED THAT DISCHARGE DOES NOT CAUSE EROSION OR CREATE TURBIDITY WITHIN THE RECEIVING BODY AND ARE IN COMPLIANCE WITH REGULATORY REQUIREMENTS. THESE DISCHARGES MAY INCLUDE WASTE FLUIDS FROM FUELING, FIRE FIGHTING ACTIVITIES, FIRE HYDRANT FLUSHING, DUST CONTROL, IRRIGATION DRAINAGE, AIR CONDITIONING CONDENSATION, AND WATER USED TO SPRAY OFF LOOSE SOILS FROM VEHICLES.
5. PROPERTY CORNERS SHALL BE LOCATED BY A LICENSED LAND SURVEYOR AND CLEARLY MARKED IN THE FIELD PRIOR TO THE BEGINNING OF CONSTRUCTION OF THE CONSTRUCTION OF THE PROJECT DEVELOPMENT.
6. AUTHORIZATION FOR INSTALL EROSION CONTROL DEVICES AND PRESERVE BARRICADES WILL BE GRANTED AT THE PRE-CONSTRUCTION MEETING. THIS AUTHORIZATION SHALL BE POSTED ON THE SITE, IN THE PERMIT BOB, ITS LOCATION SHOWN ELSEWHERE ON THIS PAGE.
7. NO ADDITION LAND CLEARING SHALL COMMERCE UNTIL A SATISFACTORY INSPECTION OF THE REQUIRED EROSION CONTROL BARRICADES HAS BEEN OBTAINED.
8. ALL CONSTRUCTION BARRICADES AND SILT FENCES WILL REMAIN IN PLACE AND BE MONITORED FOR COMPLIANCE BY PERMIT HOLDER THROUGH THE PERMITTED DEVELOPMENT ACTIVITIES.
9. PRIOR TO SCHEDULING A FINAL ENVIRONMENTAL INSPECTION FOR THE INFRASTRUCTURE, ALL BARRICADES AND EROSION CONTROL DEVICES SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
10. SOIL STABILIZATION SHALL BE COMPLETED WITHIN 30 DAYS OF VEGETATION REMOVAL. STABILIZATION TO CONSIST OF PLACEMENT OF SOD OR SEED/MULCH (3" MIN) OF ALL DISTURBED AREAS.
11. SUBDIVISION LOTS SHALL NOT BE CLEARED UNTIL A LAND-CLEARING PERMIT IS ISSUED IN CONJUNCTION WITH A BUILDING PERMIT FOR EACH INDIVIDUAL LOT. CLEARING OF LOTS SHOULD BE LIMITED TO THE R.O.W., EASEMENTS, AND STOCKPILE AREA AS SHOWN.

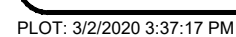




- GENERAL NOTES:
1. ALL ELEVATIONS ARE REFERENCED TO THE 1988 NORTH AMERICAN VERTICAL DATUM, (NAVD).
 2. TOPOGRAPHIC SURVEY PERFORMED BY ENGENUITY GROUP.
 3. ALL DISTURBED AREAS MUST BE STABILIZED WITH SEED WITHIN 30 DAYS OF CONSTRUCTION COMPLETION.
 4. GEOTECHNICAL REPORT SHALL BE PROVIDE VERIFYING REMOVAL AND REPLACEMENT OF HARD PAN LAYER BENEATH THE PROPOSED RETENTION AREAS AS PART OF THE CORE INFRASTRUCTURE SUBMITTAL.



11 22 JOB NO. 16042.02	DATE	FEBRUARY 2020
	DRAWN	ACS/YM
	PROJECT ENGINEER	ACS
	PROJECT MANAGER	ACS
	CHECKED	ACS



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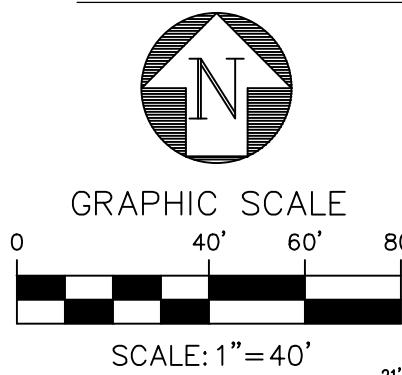
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DATE		ACS/YM	
DRAWN		ACS	
PROJECT ENGINEER		PROJECT MANAGER	
CHECKED		ACS	
JOB NO. 16042.02		<div> <div>12</div> <div>22</div> </div>	



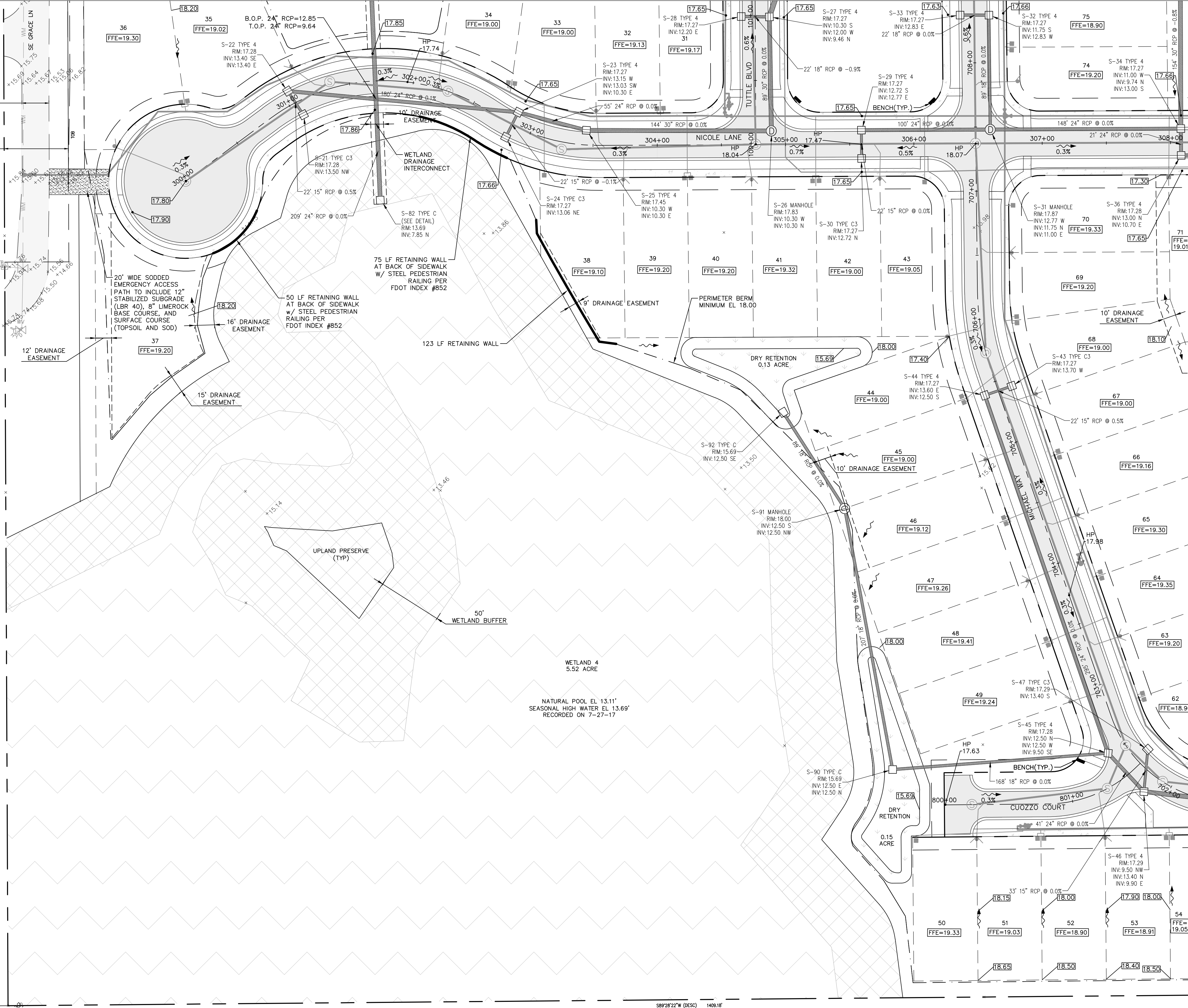
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MATCHLINE SEE SHEET 12

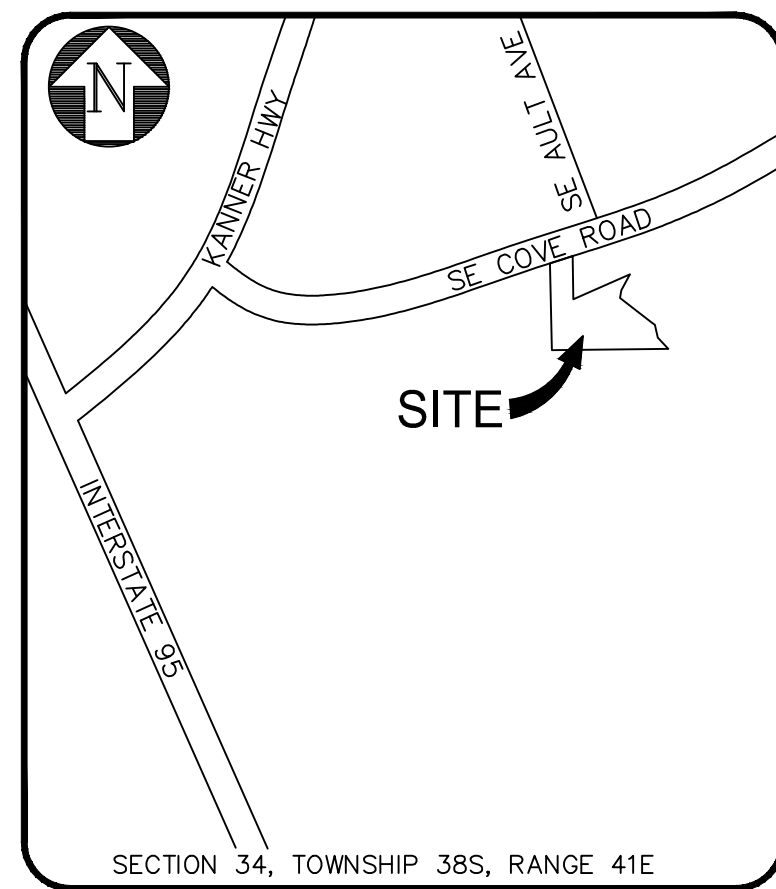


50' WIDE INGRESS/EGRESS EASEMENT
D.L.R. 877, P.S. 2274



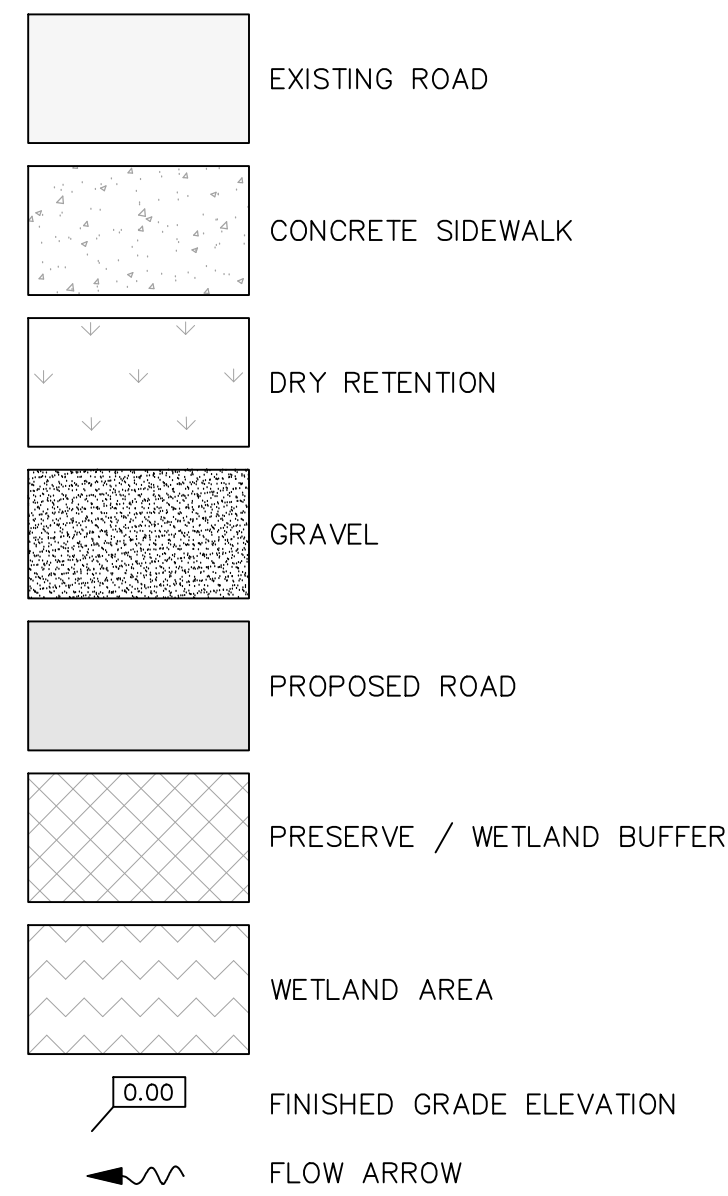
S89°28'22\"W (DESC) 1409.18'

ATLANTIC RIDGE
PRESERVE STATE PARK



LOCATION MAP
N.T.S.

ENGINEERING LEGEND:



GENERAL NOTES:

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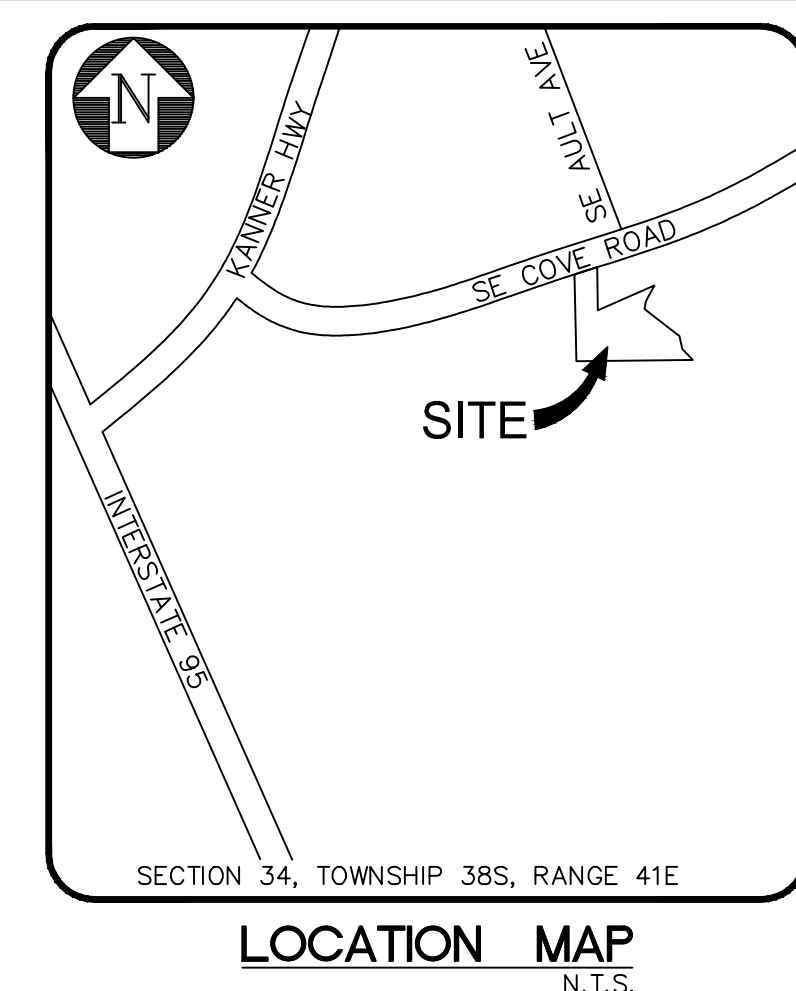
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FEBRUARY 2020	ACS/YM	ACS	ACS	ACS	ACS	ACS
13	13	13	13	13	13	13
22	22	22	22	22	22	22
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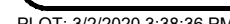


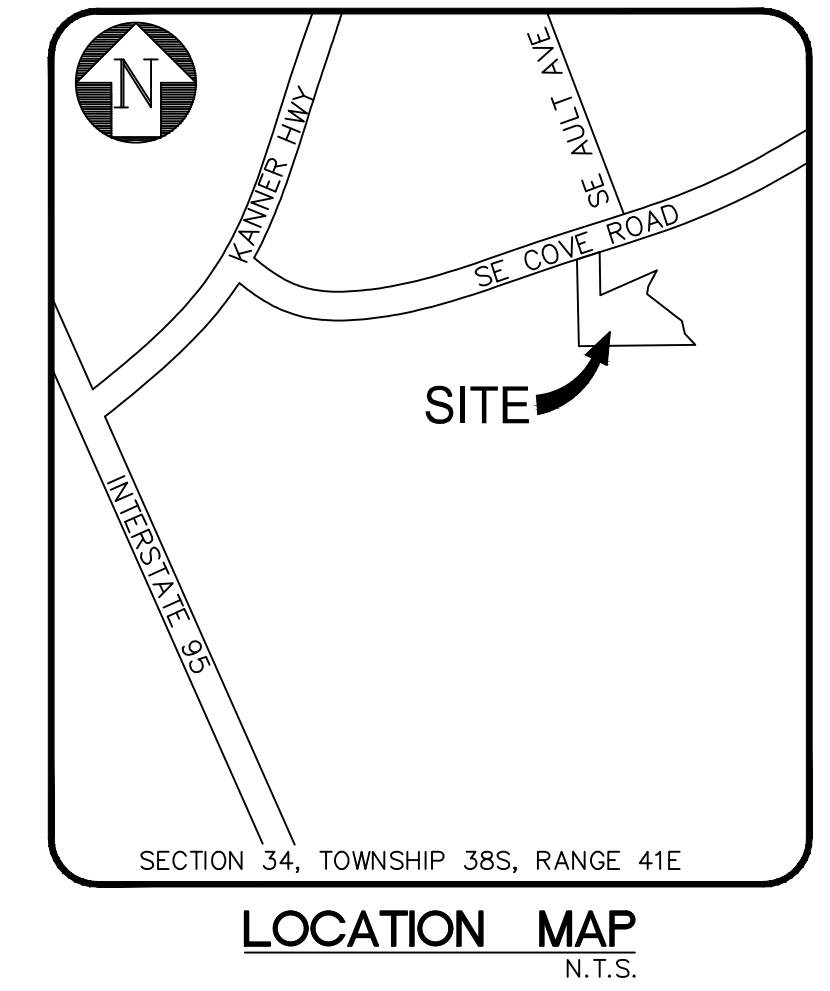
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









J.Land Projects R2116042.02 Cove Royale/DWG#16042.02_SHT-16_TY-16 JOB NO. 16042.02	16	DATE	FEBRUARY 2020
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		PROJECT ENGINEER	ACS
		PROJECT MANAGER	ACS
		CHECKED	ACS





ENGINEERING LEGEND:

	CONCRETE SIDEWALK
	DRY RETENTION
	GRAVEL
	PROPOSED ROAD
	PRESERVE / WETLAND BUFFER
	WETLAND AREA
	FINISHED GRADE ELEVATION
	FLOW ARROW
	RADIUS CALL-OUT

- GENERAL NOTES:
1. ALL ELEVATIONS ARE REFERENCED TO THE 1988 NORTH AMERICAN VERTICAL DATUM, (NAVD).
 2. TOPOGRAPHIC SURVEY PERFORMED BY ENGENUITY GROUP.
 3. ALL PAVEMENT MARKING SHALL BE THERMOPLASTIC IN ACCORDANCE WITH FDOT INDEX #17346.
 4. ALL CROSSWALK/SIDEWALK TO COMPLY WITH LATEST ADA GUIDELINES.

STRIPING KEY			
DESIGNATION	SIZE	LINETYPE	COLOR
A	6"	SOLID	WHITE
B	8"	SOLID	WHITE
C	12"	SOLID	WHITE
D	18"	SOLID	WHITE
E	24"	SOLID	WHITE
F	6"	SKIP (10' - 30')	WHITE
G	6"	SKIP (6' - 10')	WHITE
H	6"	SKIP (2' - 4')	WHITE
I	6"	SOLID	YELLOW
J	18"	SOLID	YELLOW
K	6"	DOUBLE	YELLOW
L	6"	SKIP (10' - 30')	YELLOW
M	6"	SKIP (6' - 10')	YELLOW
N	6"	SKIP (2' - 4')	YELLOW
P	RPM	MONO-DIRECTIONAL	WHITE / CLEAR
Q	RPM	BI-DIRECTIONAL	AMBER / AMBER
R	---	FDP	WHITE
S	---	FDP	YELLOW
T	RPM	BI-DIRECTIONAL	WHITE / RED
U	---	DIRECTIONAL ARROW	---
GENERAL NOTES			
ALL PAVEMENT MARKINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE ROADWAY AND TRAFFIC DESIGN STANDARDS (FDOT).			


ALL PAVEMENT MARKINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND THE ROADWAY AND TRAFFIC DESIGN STANDARDS (FDOT).

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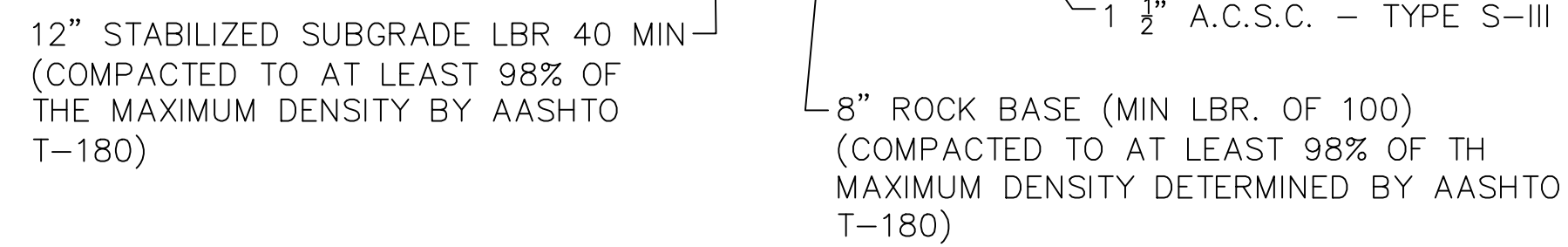
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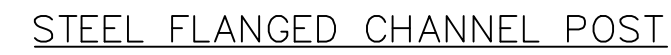
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	PROJECT MANAGER	ACS
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TYPICAL ROADWAY SECTION
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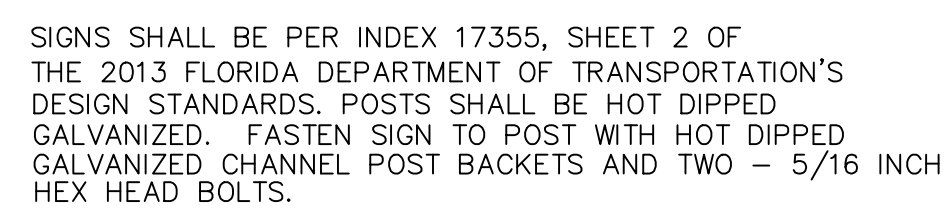
LB/FT*	TYPE	A (in)	B (in)	C (in)	Sx (in)
2.50	F	1.562	3.125	1.250	.310
2.50	M	1.500	3.063	1.281	.313
3.00	F	1.750	3.500	1.625	.430
3.00	M	1.875	3.500	1.313	.447
4.00	F	1.750	3.500	1.671	.560
4.00	M	1.938	3.500	1.313	.625

* $\pm 4\%$

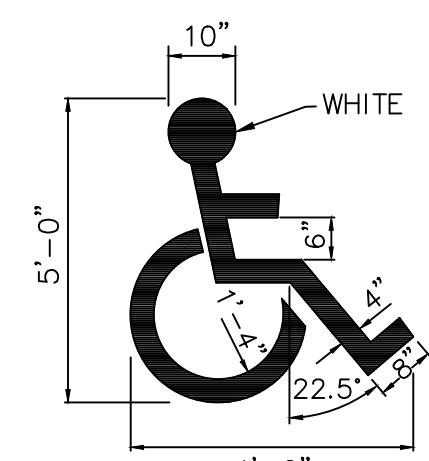
ALL SIGN POSTS SHALL BE STEEL FLANGED CHANNELS. THE USE OF CONCRETE FOOTERS / BASES WITH THE POST IS NOT PERMITTED.

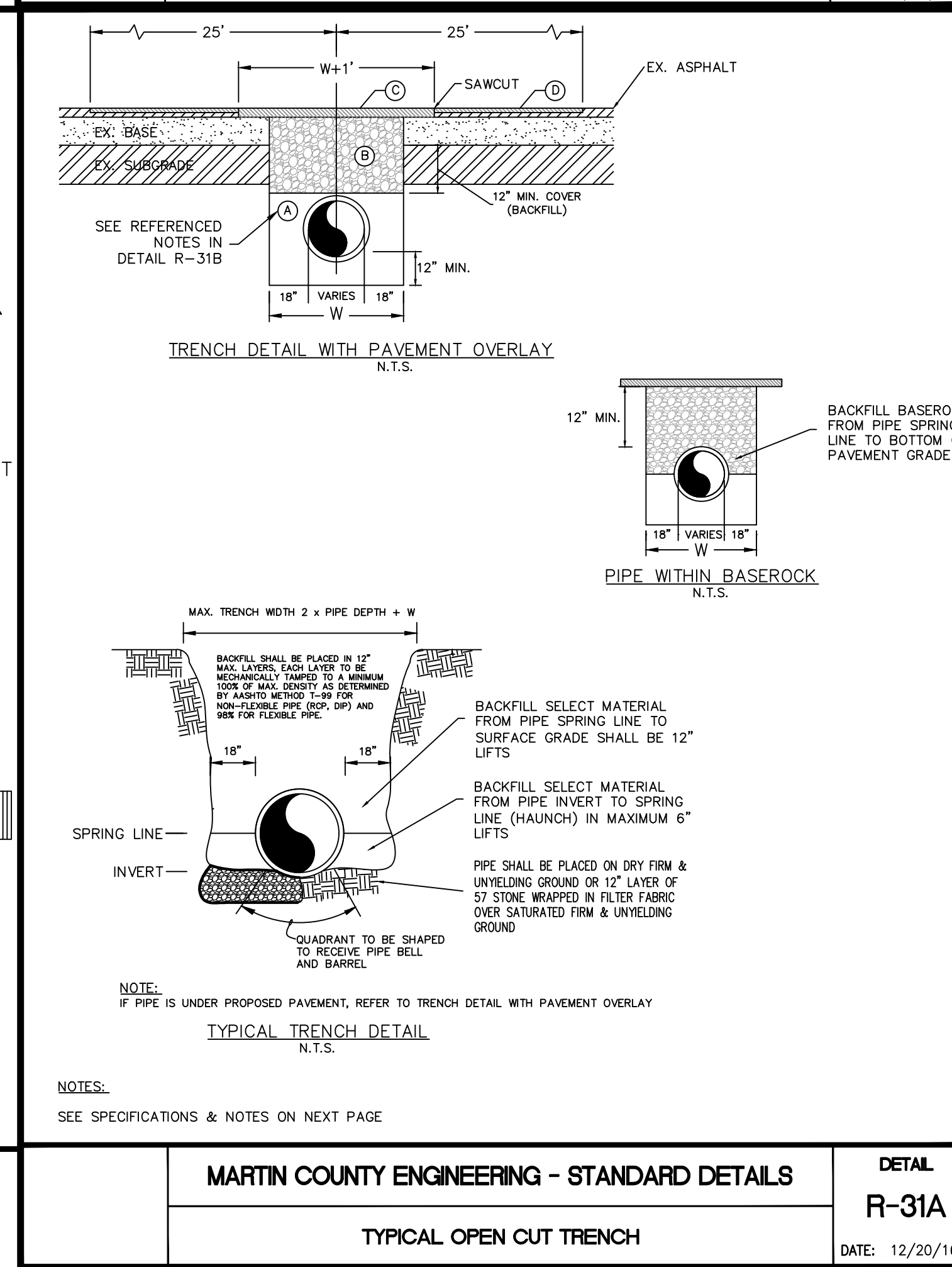
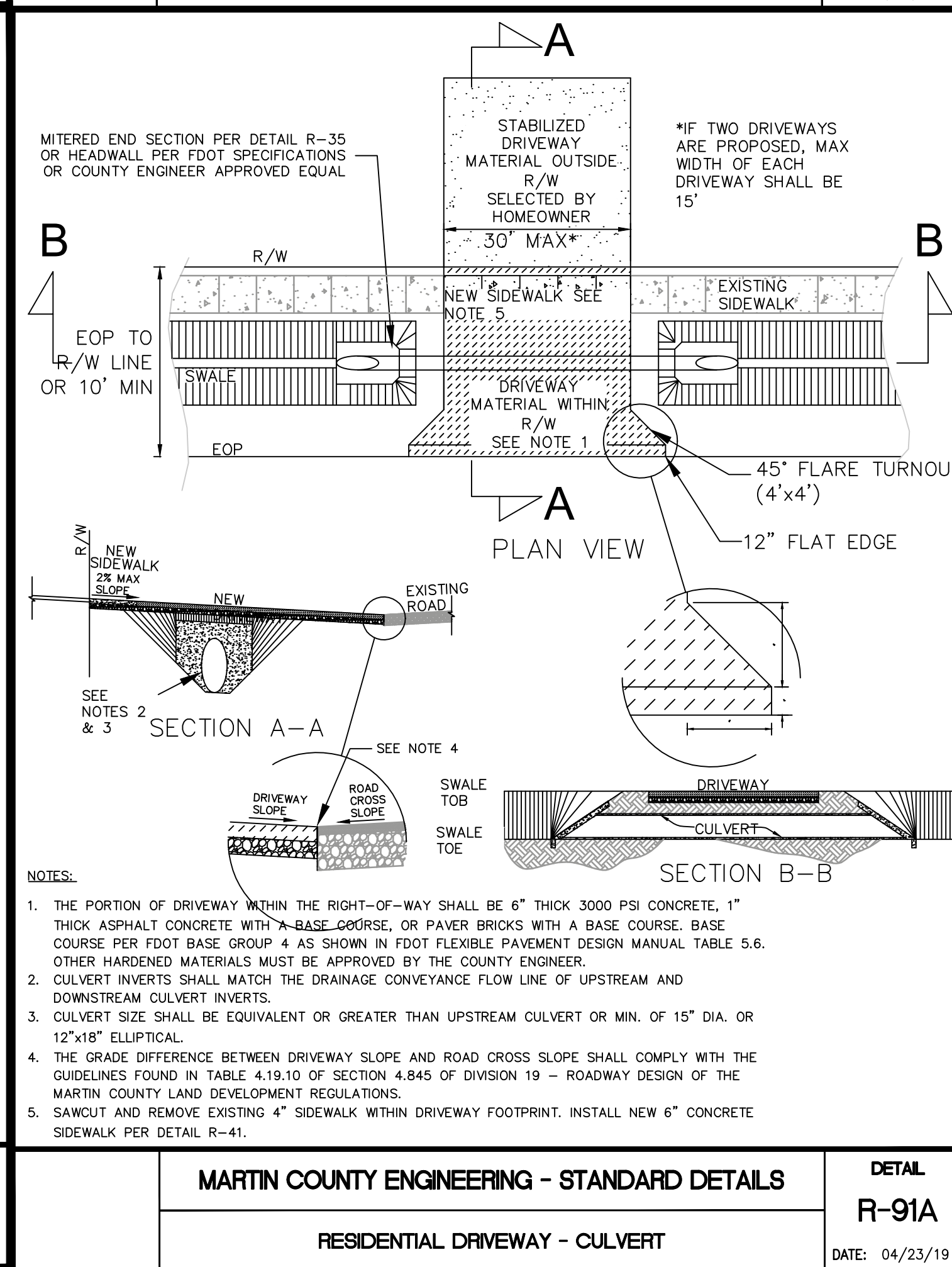
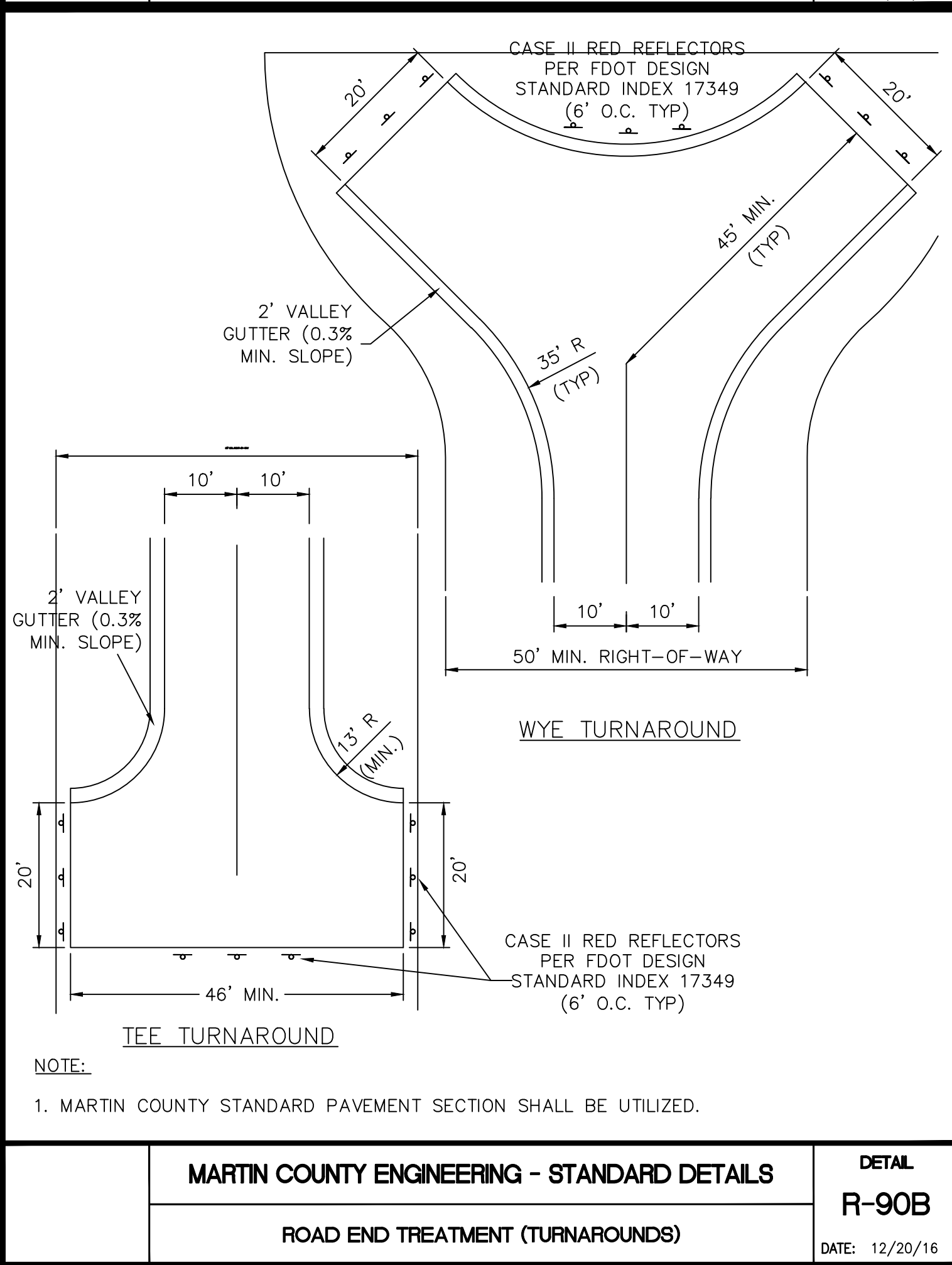
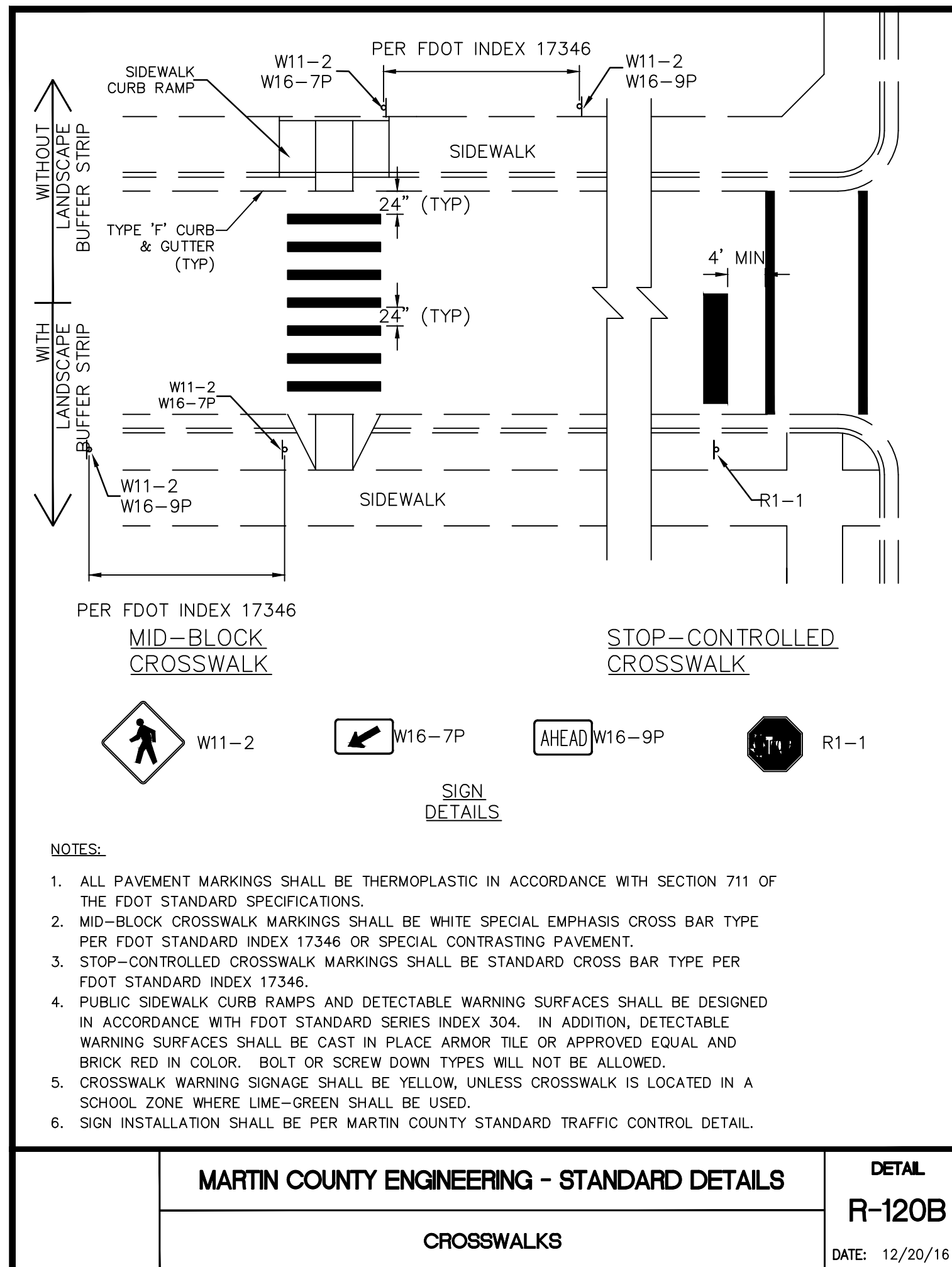
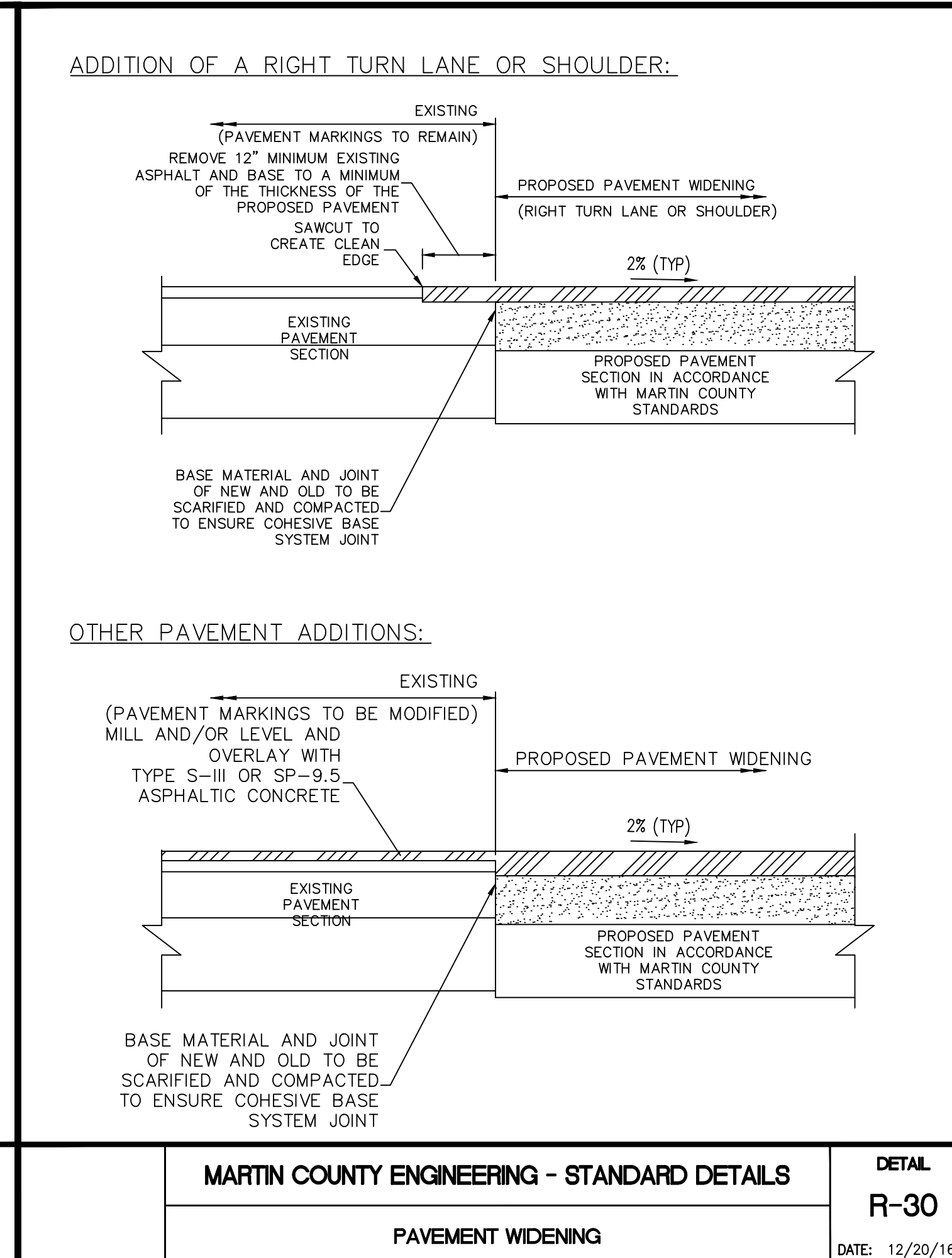
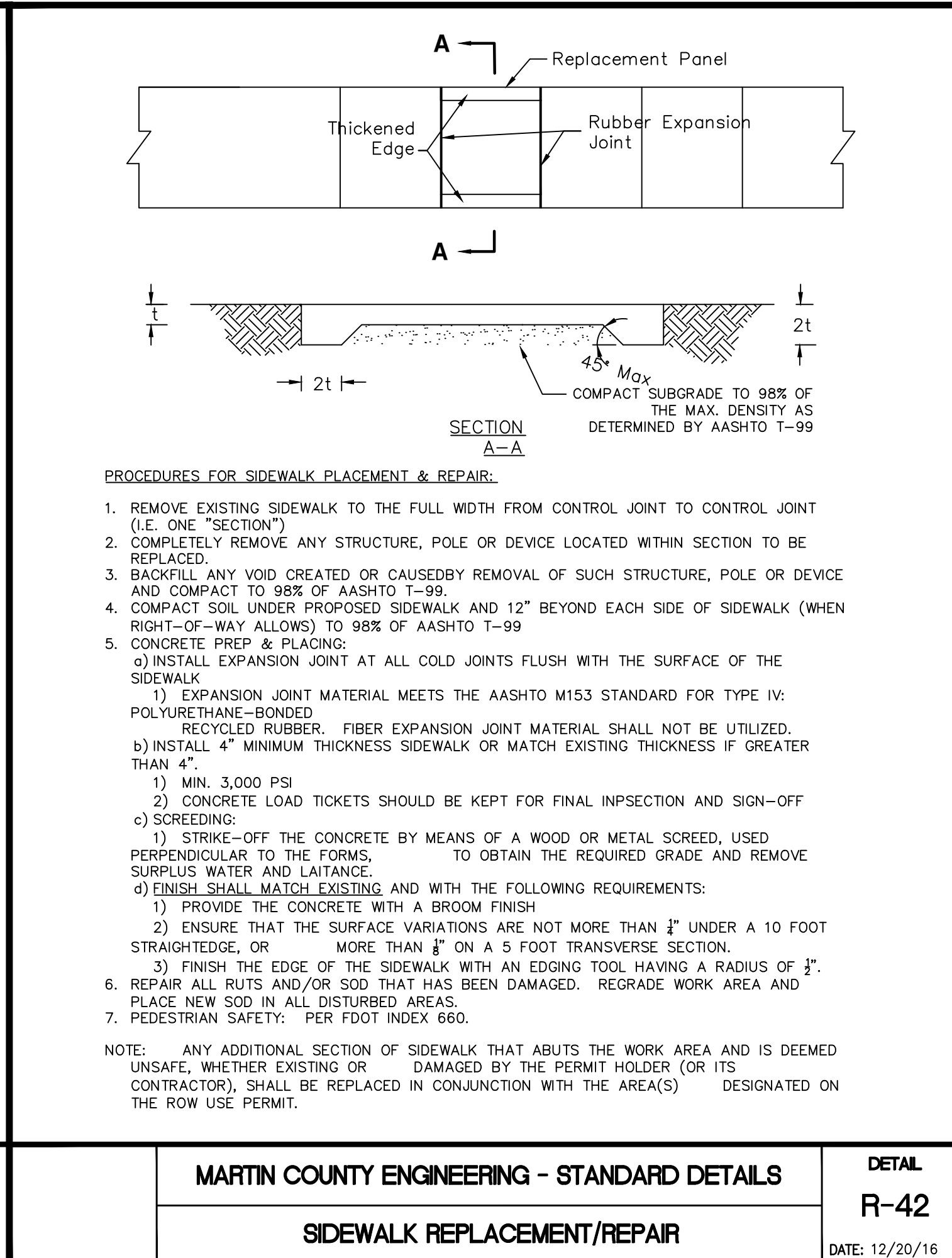
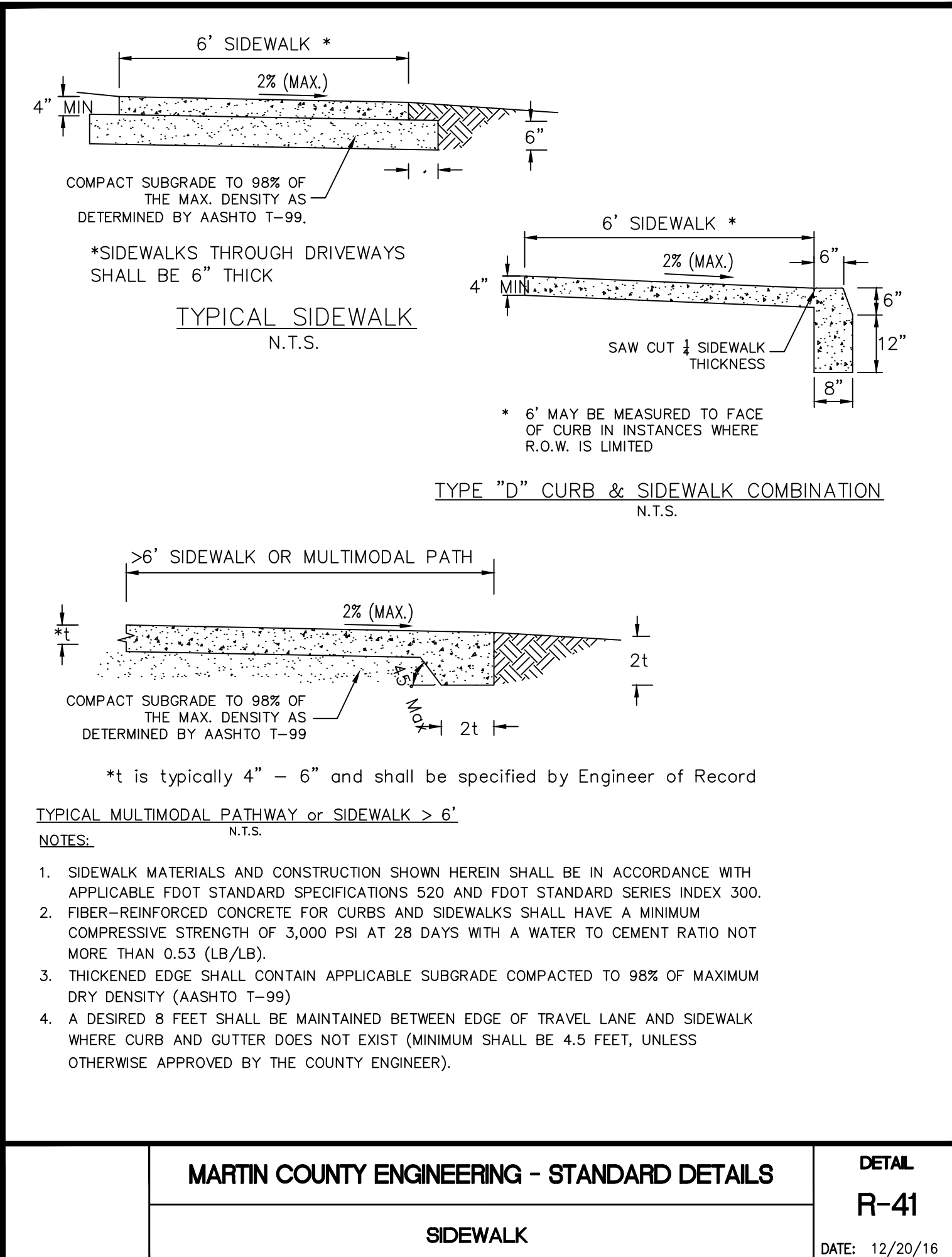
ALL SIGNS SHALL BE MADE OF REFLECTIVE SHEETING ON 0.080-GAUGE ALUMINUM SIGN BLANKS.

TRAFFIC CONTROL SIGNS



DISABLED PARKING SIGN





REVISIONS

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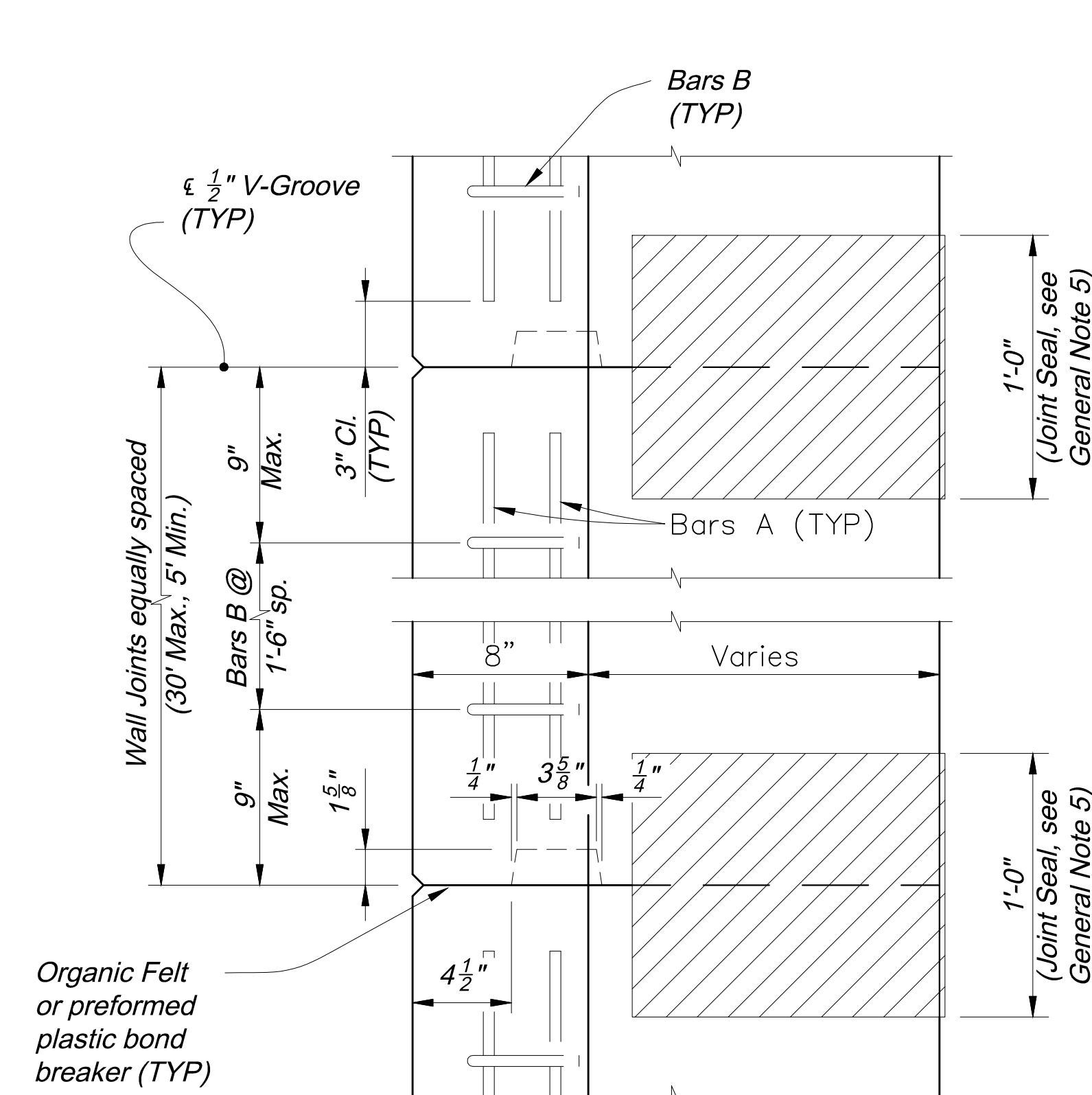
FEBRUARY 2020

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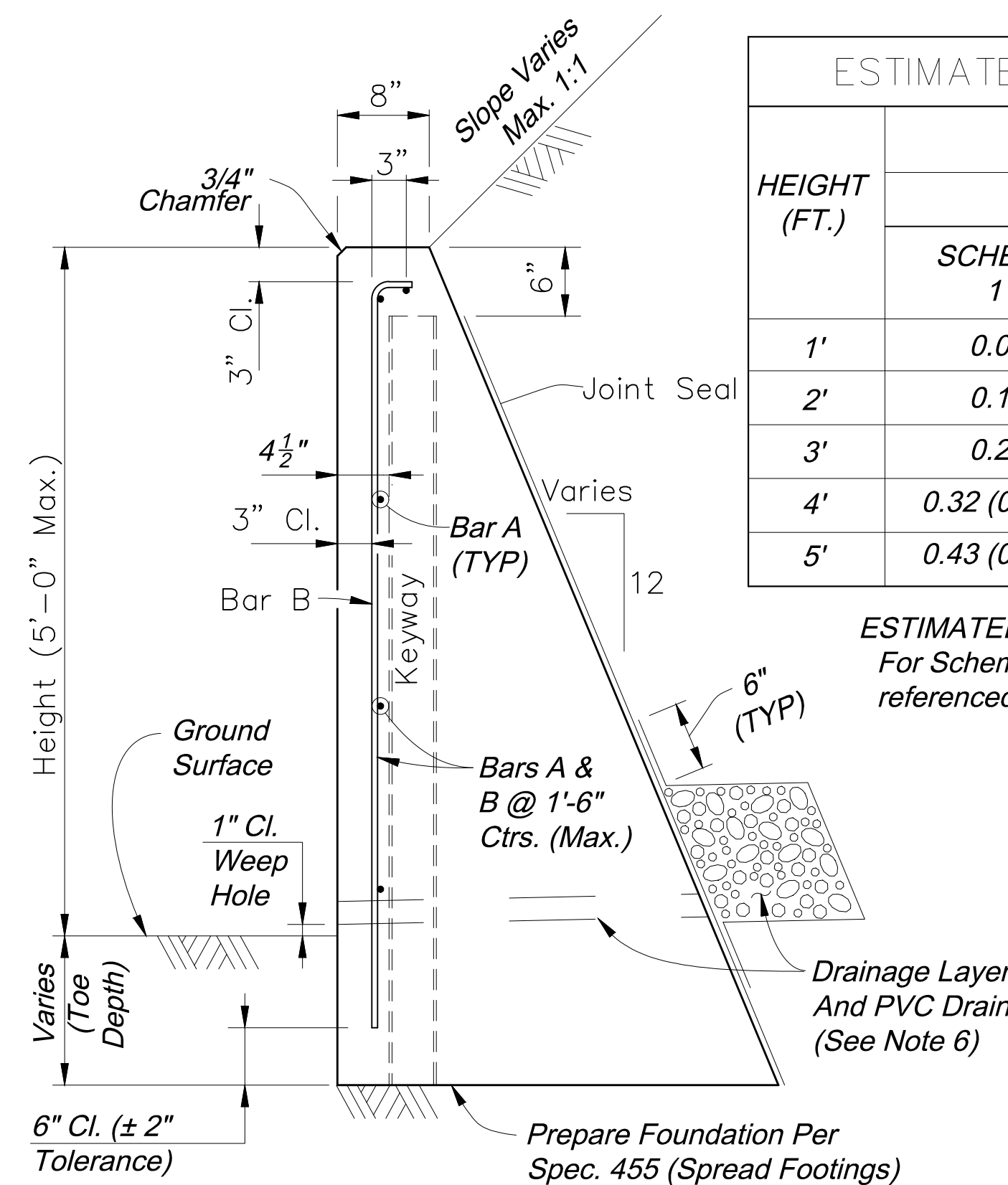
21

22

JOB NO.
16042.02



KEYWAY & WALL JOINT DETAIL
(TOP VIEW)



TYPICAL SECTION
C-I-P CONCRETE GRAVITY WALL

ESTIMATED QUANTITIES FOR C-I-P WALL					
HEIGHT (FT.)	PER LINEAR FOOT OF WALL				WEEP HOLES & DRAIN REQD.
	CLASS NS CONCRETE (CY)			REINF. STEEL (LB.)	
	SCHEME 1	SCHEME 2	SCHEME 3 **		
1'	0.08	0.11 (0.20*)	0.03	3 (4*)	No
2'	0.14	0.20 (0.32*)	0.09	4 (5*)	No
3'	0.22	0.32 (0.47*)	0.29	5 (6*)	Yes
4'	0.32 (0.43*)	0.47 (0.65*)	0.43	6 (7*)	Yes
5'	0.43 (0.55*)	0.65 (0.85*)	0.60	7 (8*)	Yes

ESTIMATED QUANTITIES NOTES:

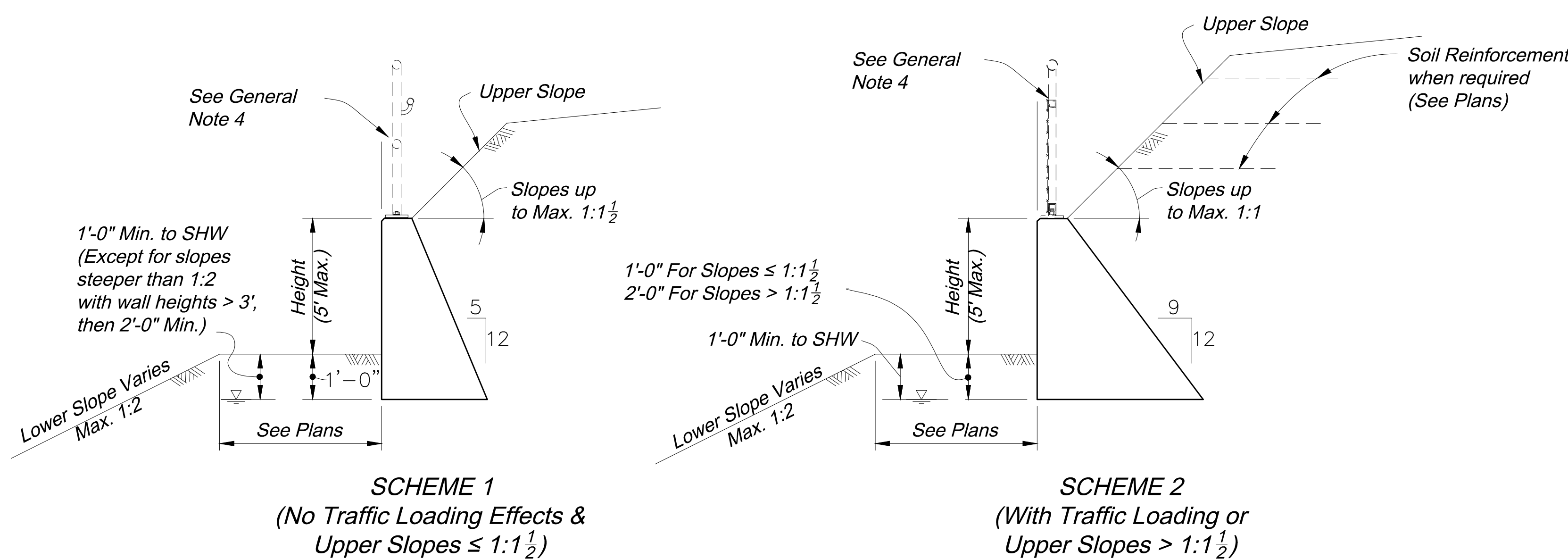
For Scheme 3 Junction Slab and Traffic Railing see the referenced Design Standards for estimated quantities.

* Quantity for 2'-0" Toe Depth.

** Quantity for Scheme 3 assumes 1'-3" thick coping above Gravity Wall.

GENERAL NOTES

- C-I-P Gravity Walls constructed as extensions of reinforced concrete retaining walls, except walls of proprietary designs, shall have the same face texture and finish as the reinforced concrete retaining wall.
- Concrete for Gravity Wall shall be Class NS per Section 347. Concrete for Scheme 3 Junction Slab and Traffic Railing shall be Class II per Section 346, unless otherwise specified in the plans.
- Reinforcing steel shall meet the requirements of Specification Section 931 (Grade 40 or 60). Smooth or Deformed Welded Wire Reinforcement (WWR) may be substituted on an equal area basis. Do not increase bar/wire spacing for Grade 60 reinforcing steel or WWR.
- When required, for adjunct guiderail, see Index 870 or 880 as appropriate. For adjunct Type B fence see Index 802.
- Joint Seal: Organic Felt bond breaker in accordance with Specification Section 400 or Type D-5 geotextile fabric in accordance with Specification Section 985. Mop all contact surfaces of concrete and Organic Felt or geotextile fabric with cut-back asphalt. Stop Organic Felt or geotextile fabric 6" below top of wall.
- Provide a continuous 1'x1' clean gravel or crushed rock drain for wall heights 3 ft. and higher. Wrap drainage layer as shown, with Type D-3 geotextile fabric in accordance with Specification Section 985. Provide 8"x8" galvanized mesh with 1/4" openings, at the inside end of the PVC Drain Pipe. Provide 2" Ø PVC Drain Pipe (Sch. 40) at 10 ft. max. spacing (when Drainage Layer is required). Locate outermost edge of Drain Pipe a minimum of 2'-0" from wall joints.
- Cost of reinforcing steel, face texture, finish, joint seal, drain pipes, drainage layer, galvanized mesh and geotextile fabric to be included in the Contract Unit Price for Concrete Class NS, Gravity Wall. Cost of concrete for Junction Slab in Scheme 3, to be included in Contract Unit Price for Concrete Traffic Railing Barrier With Junction Slab. Adjunct railings or fences to be paid for separately.



BILL OF REINFORCING STEEL		
MARK	SIZE	LENGTH
A	4	As Reqd.
B	4	As Reqd.
BAR BENDING DIAGRAM		
<p>Scheme 3 Scheme 1 & 2</p> <p>Wall Joint spacing - 4" (29'-8" Max.)</p> <p>BAR A</p> <p>Height + Toe Depth - 9"</p> <p>Height + Toe Depth - 2'-0"</p> <p>BAR B</p> <p>3 1/2"</p> <p>1'-0"</p>		
<p>NOTES:</p> <p>1. All bar dimensions are out to out.</p> <p>2. Lap splices for Bars A must be a minimum of 1'-10".</p>		

GRAVITY WALL
FDOT DESIGN STANDARD
INDEX NO. 6011

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DATE	DRAWN	PROJECT	PROJECT	PROJECT	CHECKED
FEBRUARY 2020	ACS/YM	ACS	ACS	ACS	ACS
22	22	22	22	22	22
J:\Land Projects\R2116042.02 Cove Royale\DWG\16042.02_SHT-1B_PGD-DTL.dwg	DATE: 10/16/2018 1:28 PM	DATE: 10/16/2018 1:28 PM	DATE: 10/16/2018 1:28 PM	DATE: 10/16/2018 1:28 PM	DATE: 10/16/2018 1:28 PM

WATER AND SEWER DRAWINGS FOR COVE ROYALE -PHASE I

JUNE 2019

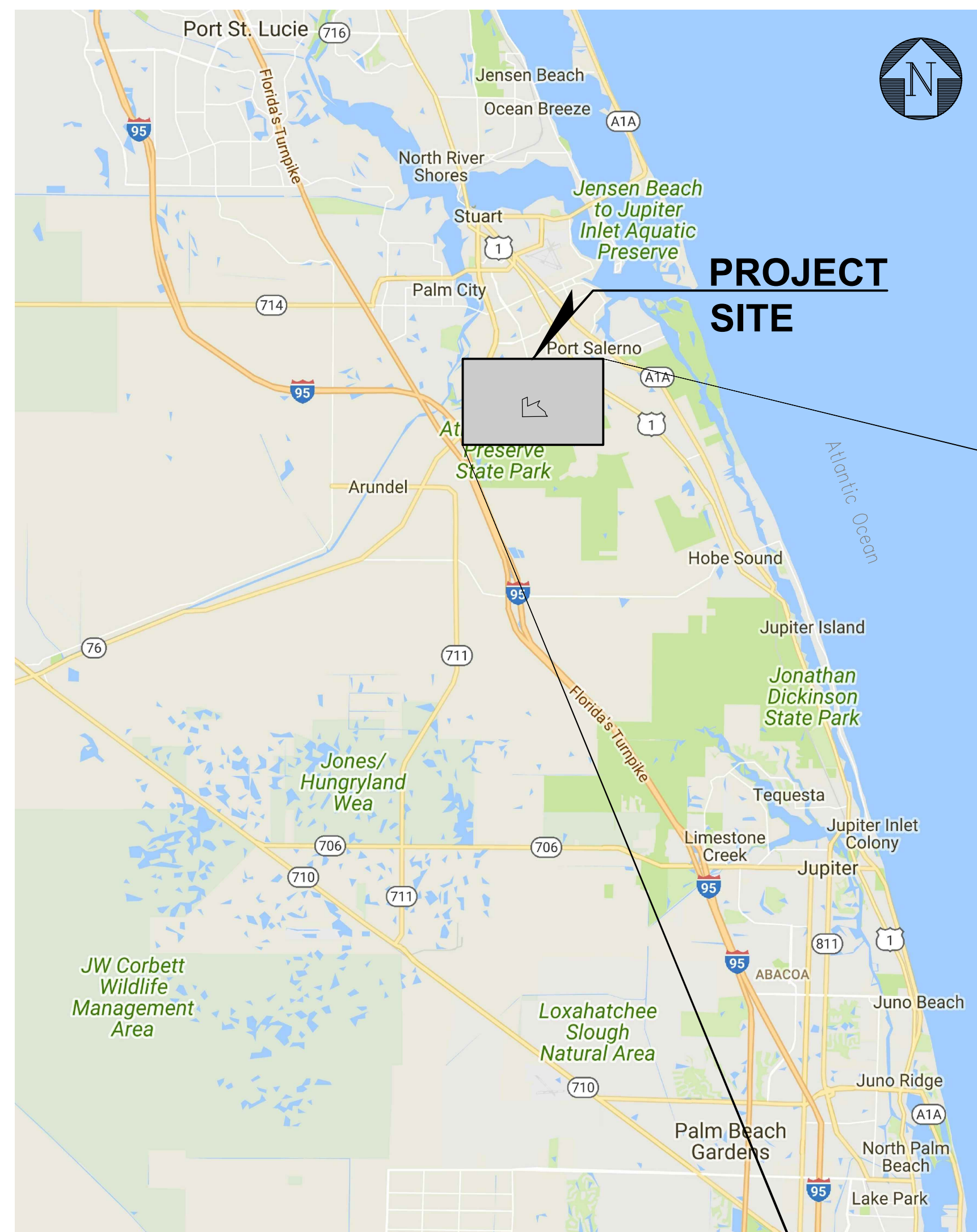
PREPARED FOR:
TLH-82 DOT, LLC

INDEX

SHEET NO SHEET TITLE

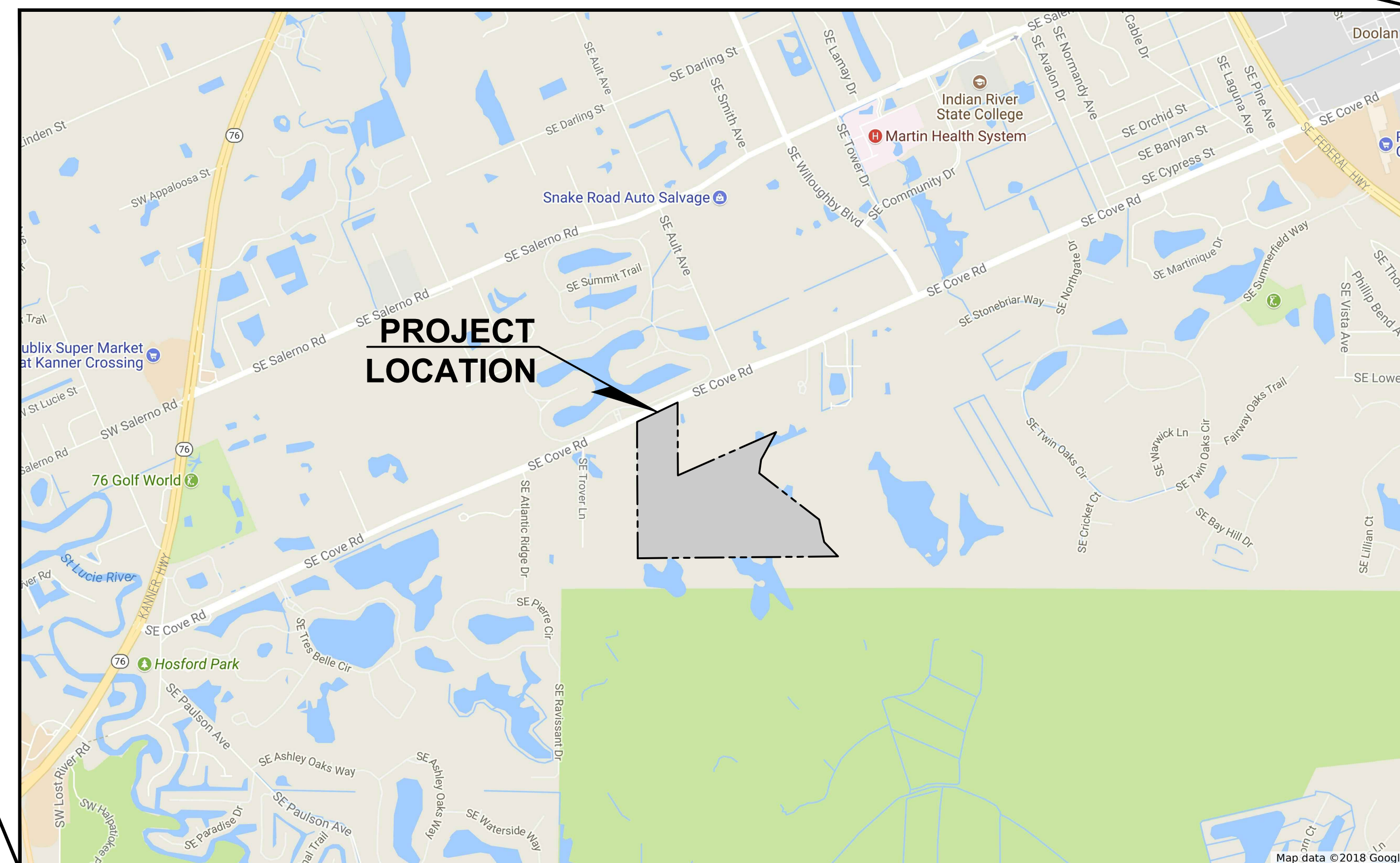
1	COVER SHEET
2	KEY SHEET & MASTER UTILITY MAP
3	WATER AND SEWER PLAN
4	WATER AND SEWER PLAN
5	WATER AND SEWER PLAN
6	WATER AND SEWER PLAN
7	WATER AND SEWER PLAN
8	WATER AND SEWER PROFILES
9	WATER AND SEWER PROFILES
10	WATER AND SEWER PROFILES
11	DIRECTIONAL BORE PROFILES
12	WATER AND SEWER DETAILS
13	WATER AND SEWER DETAILS
14	WATER AND SEWER DETAILS
15	WATER AND SEWER DETAILS
16	WATER AND SEWER DETAILS
17	WATER AND SEWER DETAILS
18	WATER AND SEWER DETAILS
19	WATER AND SEWER DETAILS

TOTAL NO OF SHEETS - 19



MAP DATA © 2018 GOOGLE

SECTION 34, TOWNSHIP 38S, RANGE 41E
VICINITY MAP
NTS



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COVER SHEET

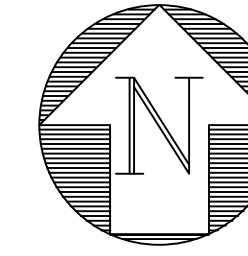
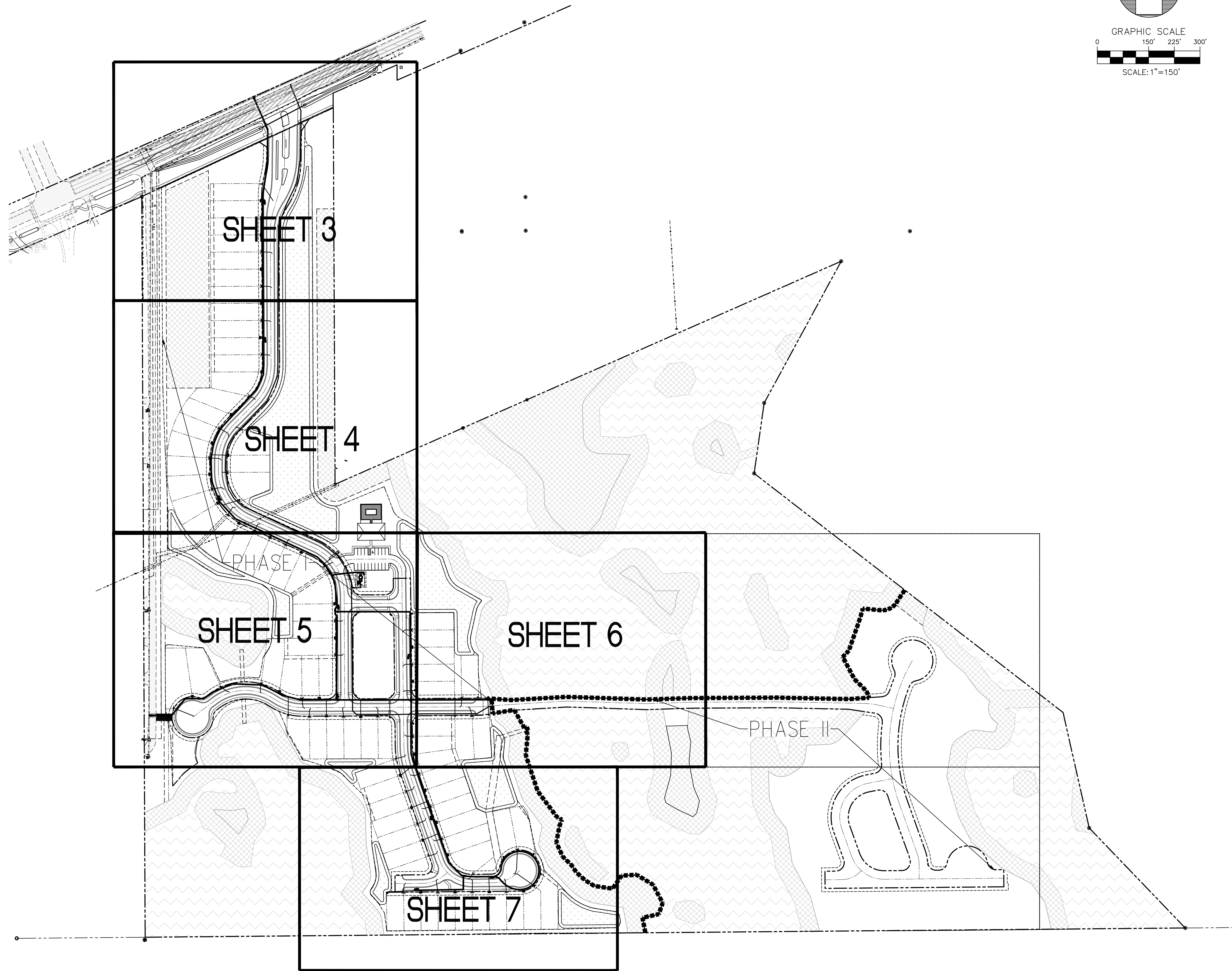
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WWW.ENGUNITYGROUP.COM CERTIFICATE OF AUTHORIZATION #7095

<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg);">JOB NO.</div> <div style="border: 1px solid black; padding: 5px; margin-left: 5px;"> <div style="display: flex; justify-content: space-between;"> 1 19 </div> </div> </div>	1	DRAWN	KL
	2	PROJECT ENGINEER	ACS
	3	PROJECT MANAGER	KBJ
	4	CHECKED	ACS
	5		



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GRAPHIC SCALE

0 150' 225' 300'

SCALE: 1"=150'

[illegible]

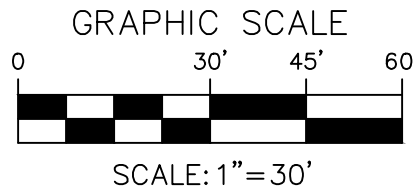
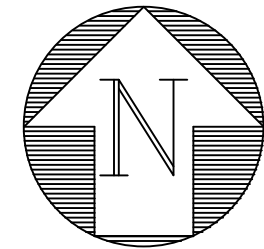
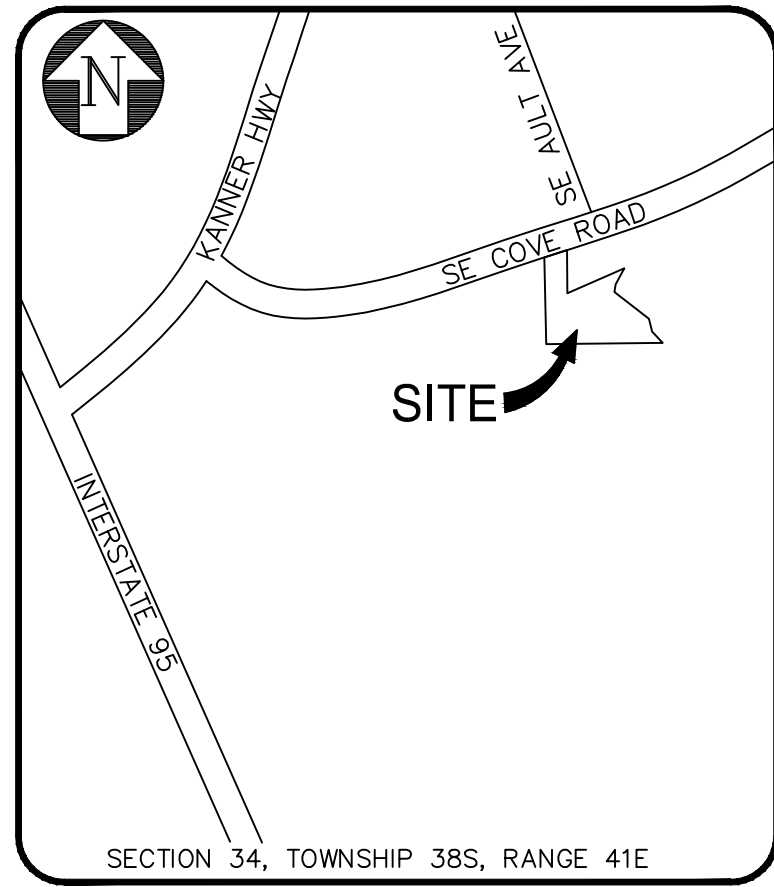
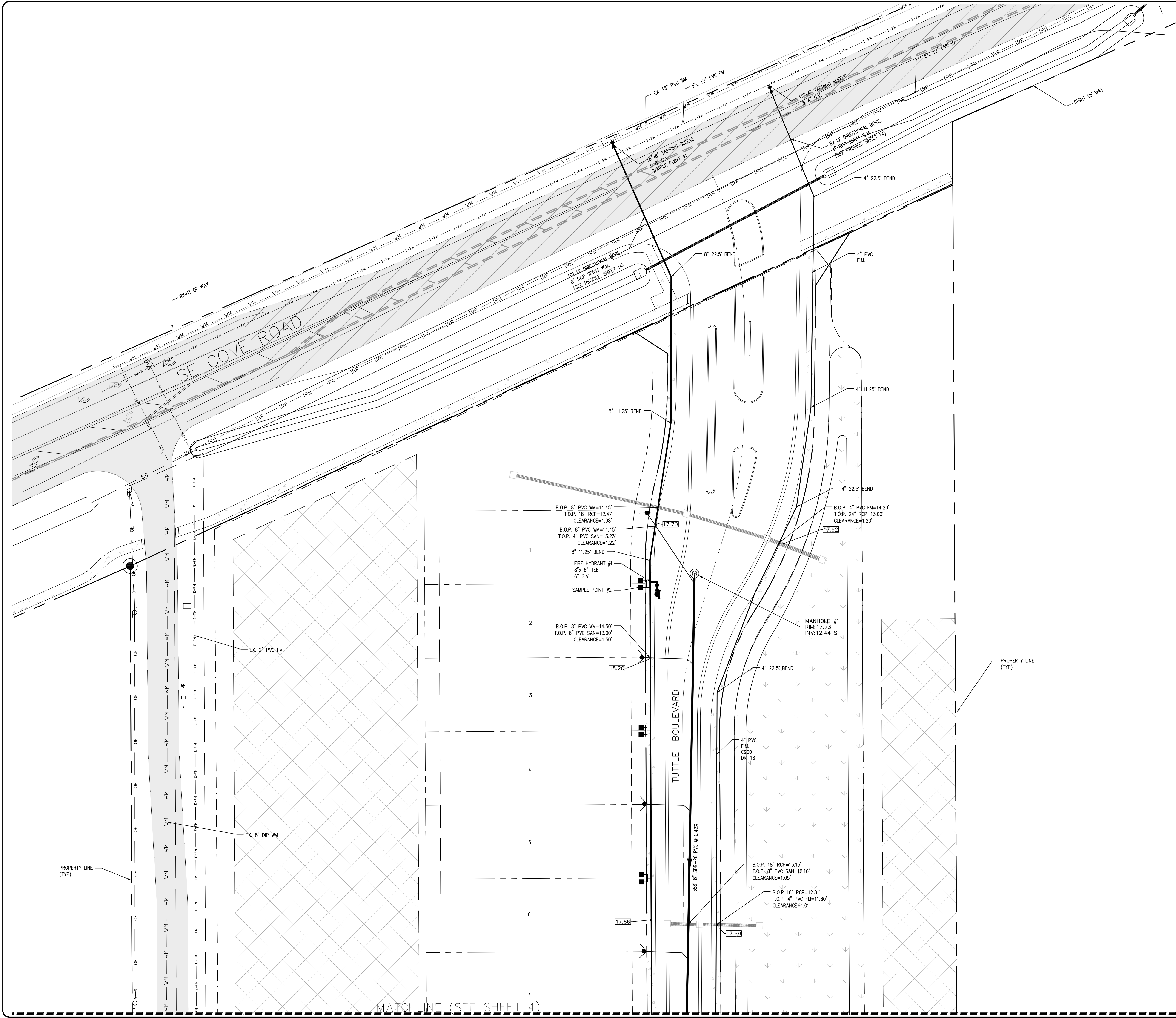
TE: 10/18/2018 8:15 AM

COVE ROYALE-PHASE I
TLH-82 DOT, LLC
MARTIN COUNTY, FLORIDA
KEY SHEET & MASTER UTILITY MAP

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NO. 72235

[illegible]



LEGEND:

EXISTING

- MEASURED ELEV.
- SANITARY MANHOLE
- STORM MANHOLE
- CLEANOUT
- FIRE HYDRANT
- CHAIN LINK FENCE
- CONCRETE
- GATE VALVE
- STREET LIGHT
- GUY WIRE
- UTILITY POLE
- WETLAND
- PRESERVE AREAS

PROPOSED

- FIRE HYDRANT
- REDUCER
- GATE VALVE
- METER & BACKFLOW PREVENTER
- FIRE DEPARTMENT CONNECTION (FDC)
- DUCTILE IRON PIPE (DIP)
- PVC PIPE
- SANITARY MANHOLE
- SINGLE WATER SERVICE
- DUAL WATER SERVICE
- SINGLE SANITARY SERVICE
- DUAL SANITARY SERVICE
- UTILITY CONFLICT

GENERAL NOTES:

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MARTIN COUNTY, FLORIDA
WATER AND SEWER PLAN

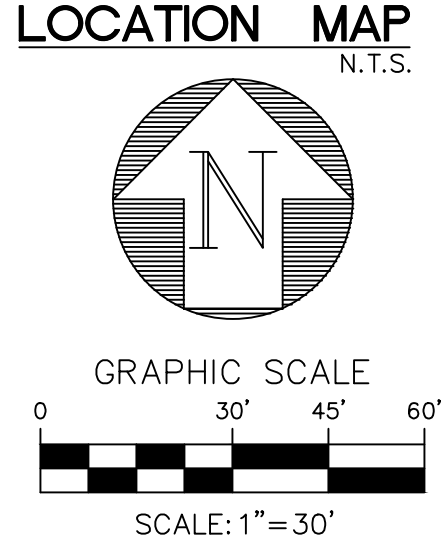
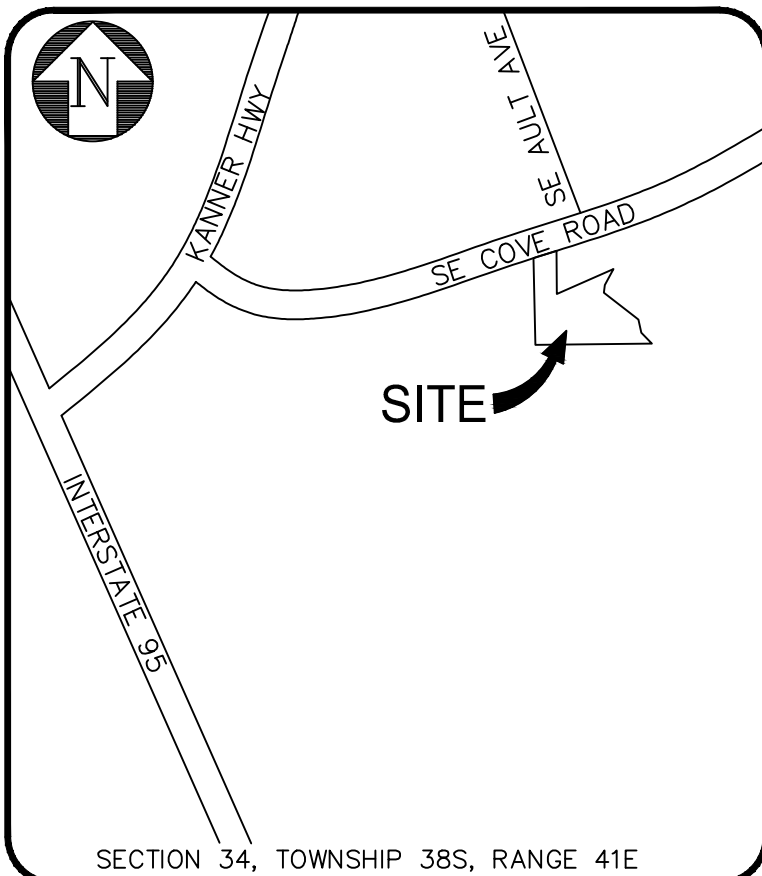
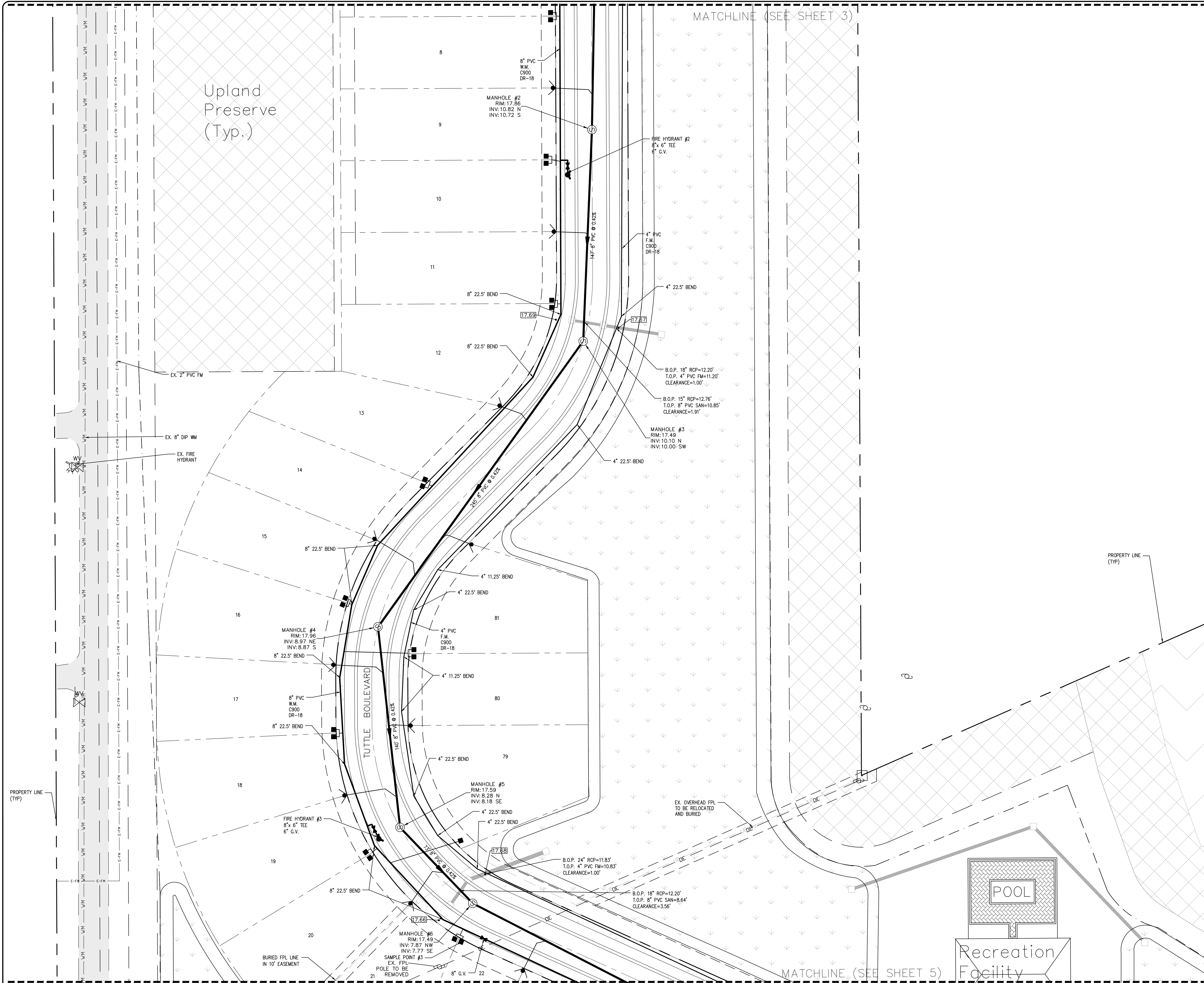
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3				
19				
JOB NO. 16042.02				



LEGEND:

EXISTING

- MEASURED ELEV.
- SANITARY MANHOLE
- STORM MANHOLE
- CLEANOUT
- FIRE HYDRANT
- CHAIN LINK FENCE
- CONCRETE
- GATE VALVE
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WATER AND SEWER PLAN

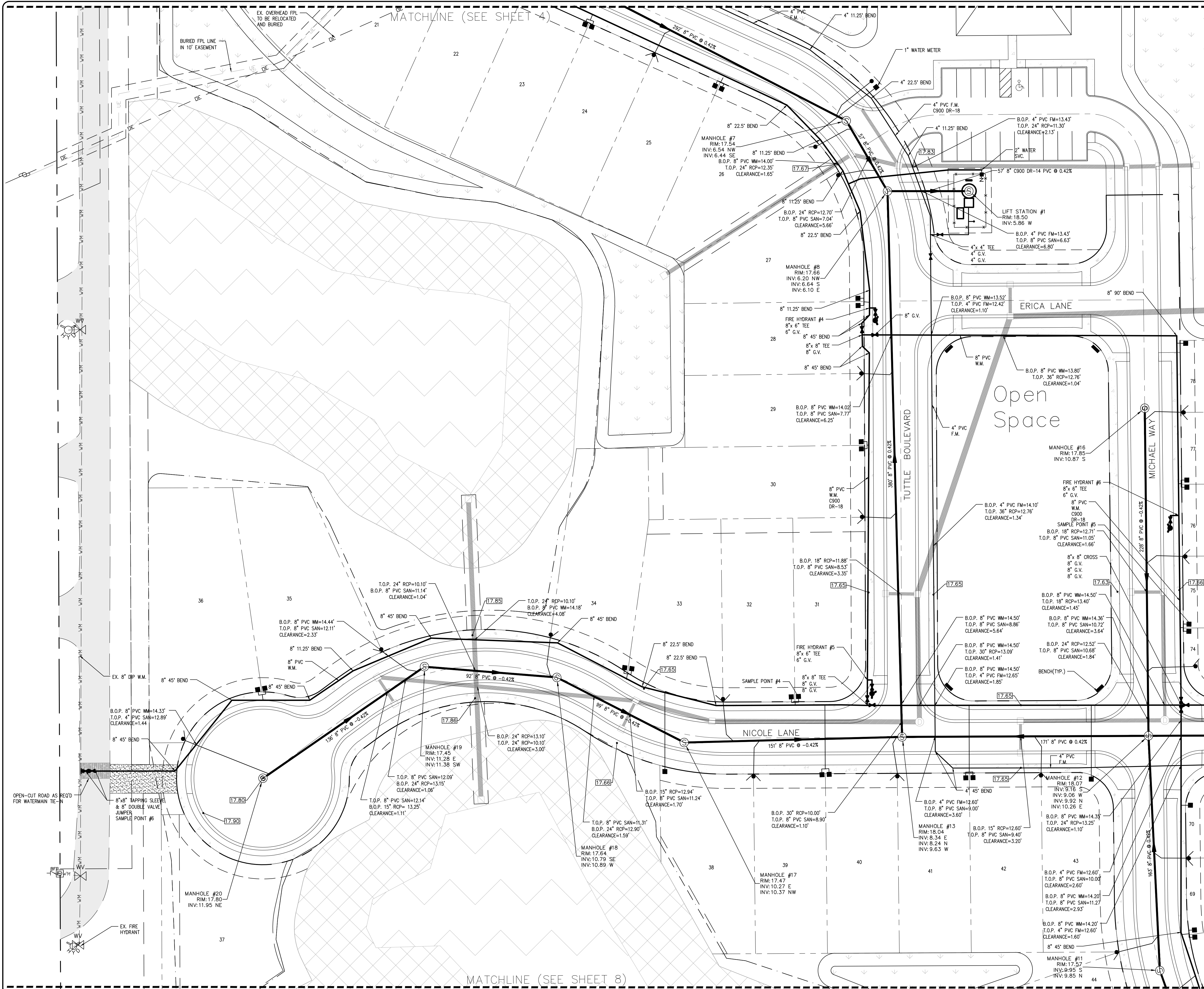
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DATE	NOV 2019	CHECKED	KL	PROJECT MANAGER	KBK
DATE	NOV 2019	CHECKED	KL	PROJECT MANAGER	ACS
JOB NO.		16042.02			



SECTION 34, TOWNSHIP 38S, RANGE 41E

LOCATION MAP

N.T.S.

GRAPHIC SCALE

0 30' 45' 60'

SCALE: 1"=30'

LEGEND:

EXISTING

- MEASURED ELEV.
- SANITARY MANHOLE
- STORM MANHOLE
- CLEANOUT
- FIRE HYDRANT
- CHAIN LINK FENCE
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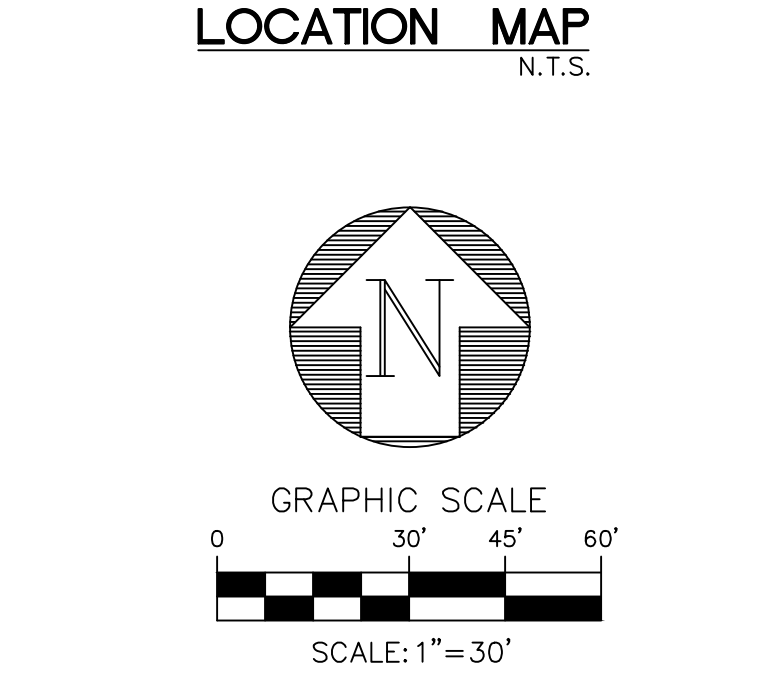
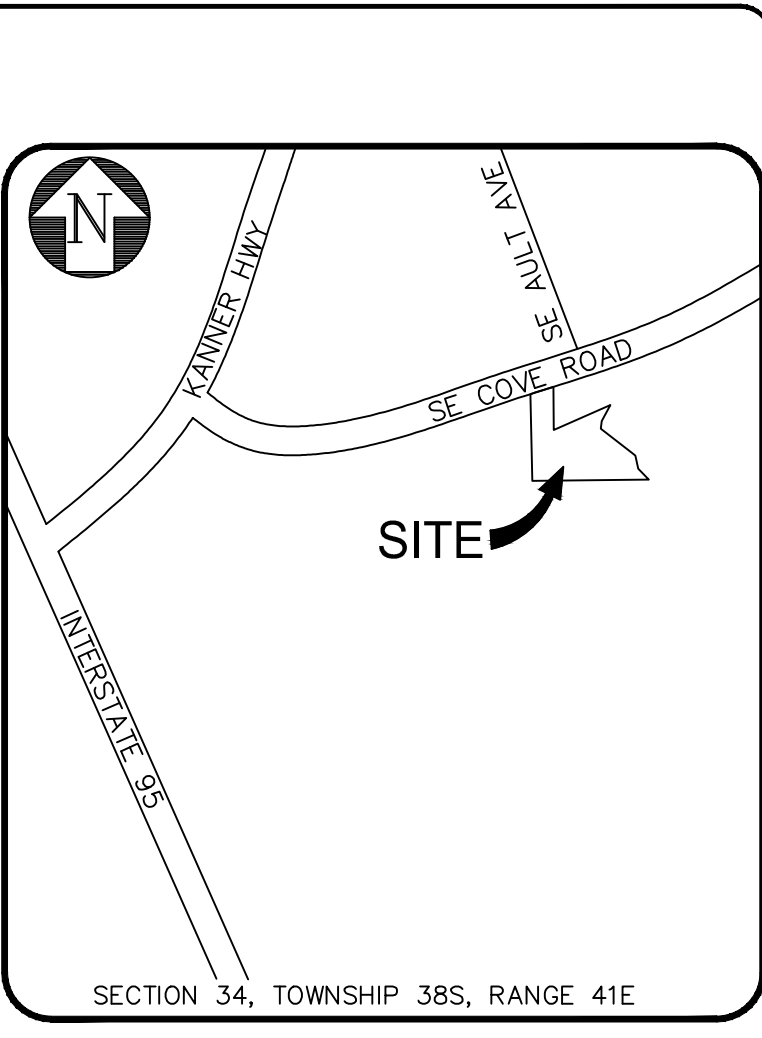
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DATE	DRAWN	PROJECT	ENGINEER	CHECKED
SEPT 2019	KL	ACS	KL	KL

19

JOB NO.
16042.02



- LEGEND:
- EXISTING**
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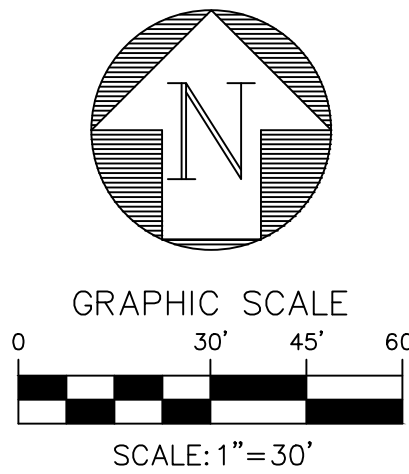
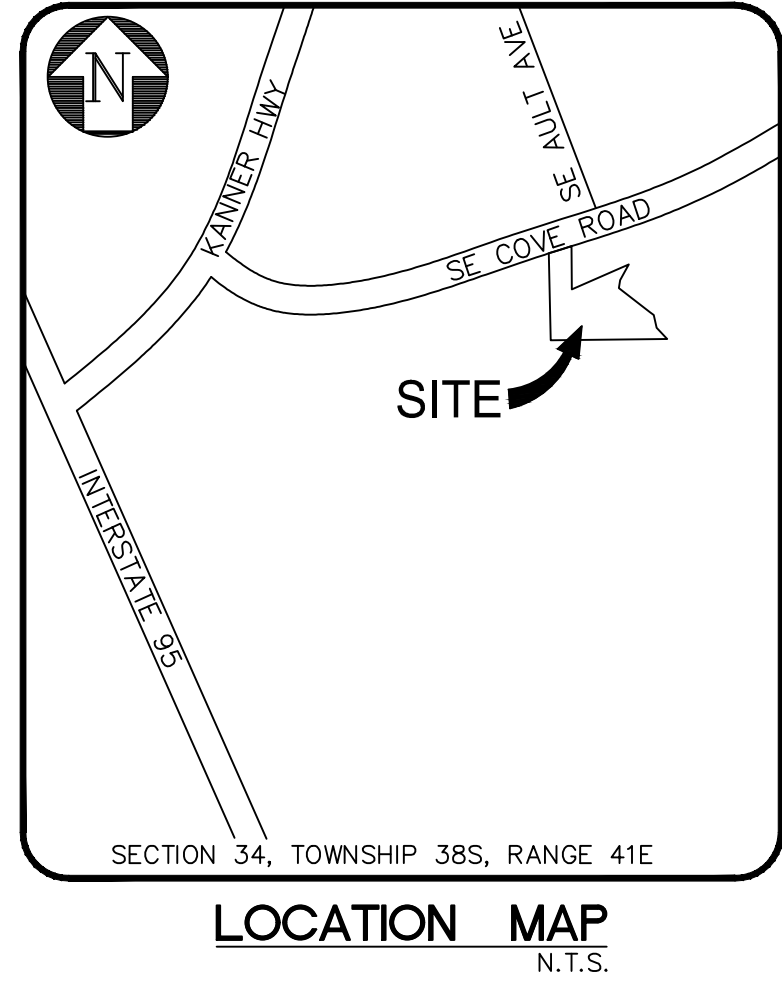
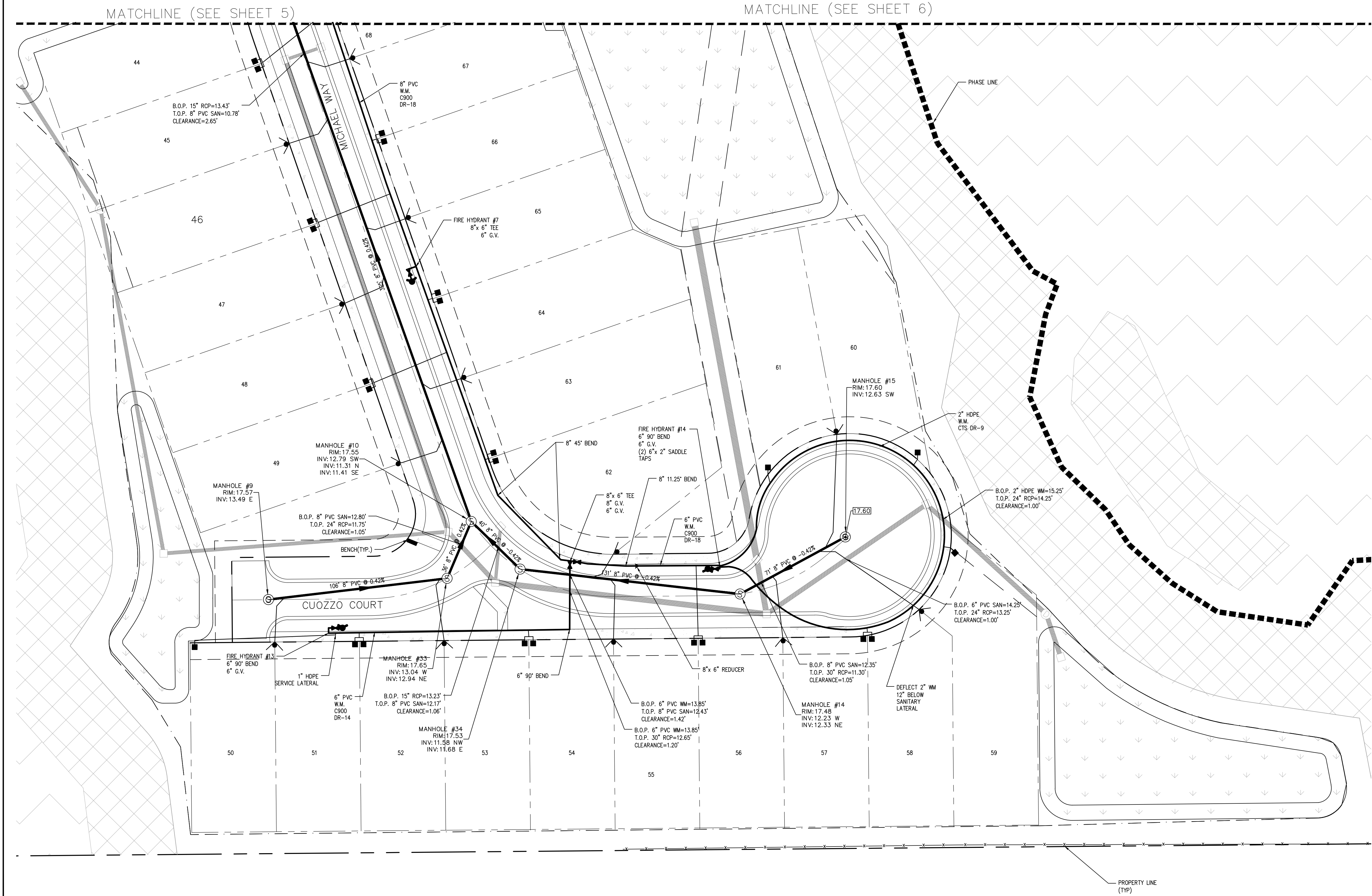
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WATER AND SEWER PLAN

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PROJECT ENGINEER					
PROJECT MANAGER					
CHECKED					
6		19			
JOB NO.		16042.02			



LEGEND:

- EXISTING**
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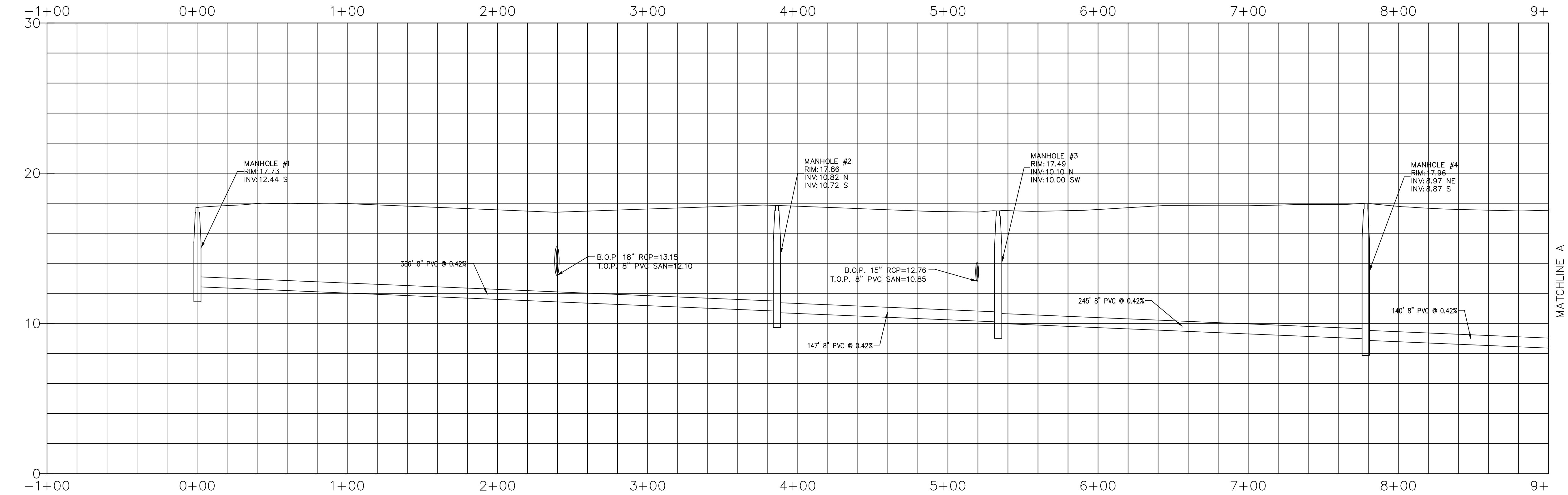
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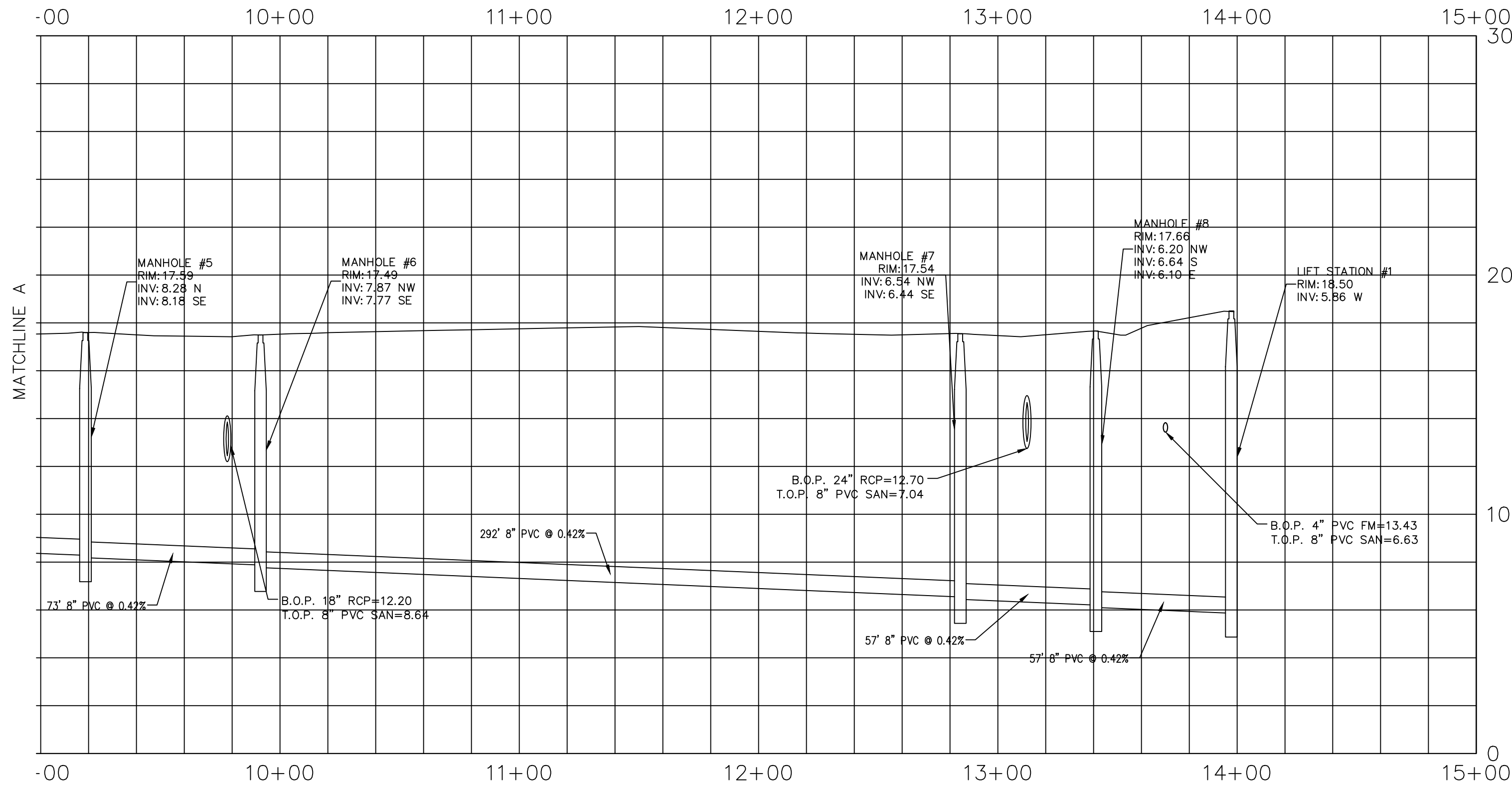
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DATE	SEPT 2019	DRAWN	KL
PROJECT ENGINEER	ACS	CHECKED	ACS
PROJECT MANAGER	KEJ	JOB NO. 16042.02	



SEWER PROFILE 1
SEE SHEETS WS-3 & WS-4
VERTICAL SCALE: 1"=4'
HORIZONTAL SCALE: 1"=40'



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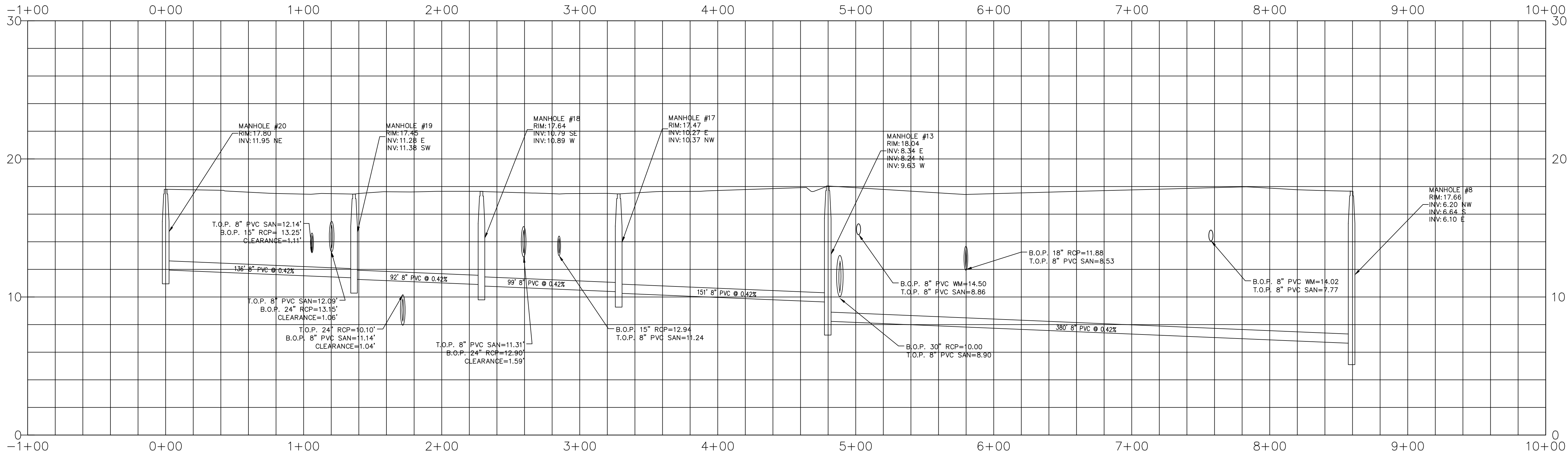
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NO. 72235

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MARTIN COUNTY, FLORIDA
WATER AND SEWER PROFILES

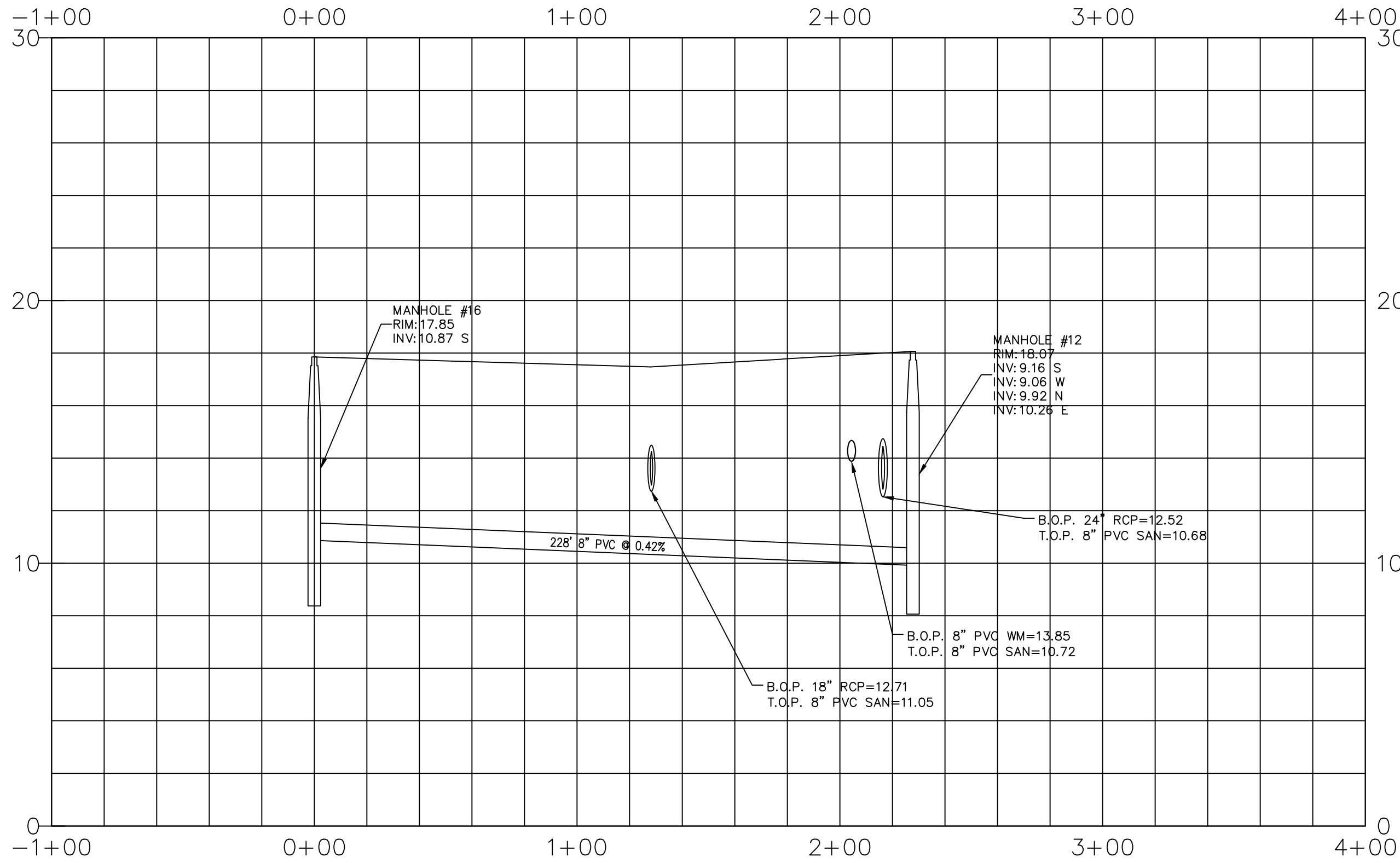
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	DRAWN	KL			
	PROJECT ENGINEER	ACS			
	CHECKED	ACS			
19		8			



SEWER PROFILE 2
SEE SHEETS WS-4 & WS-5
VERTICAL SCALE: 1"=4'
HORIZONTAL SCALE: 1"=40'



SEWER PROFILE 3
SEE SHEETS WS-4 & WS-5
VERTICAL SCALE: 1"=4'
HORIZONTAL SCALE: 1"=40'

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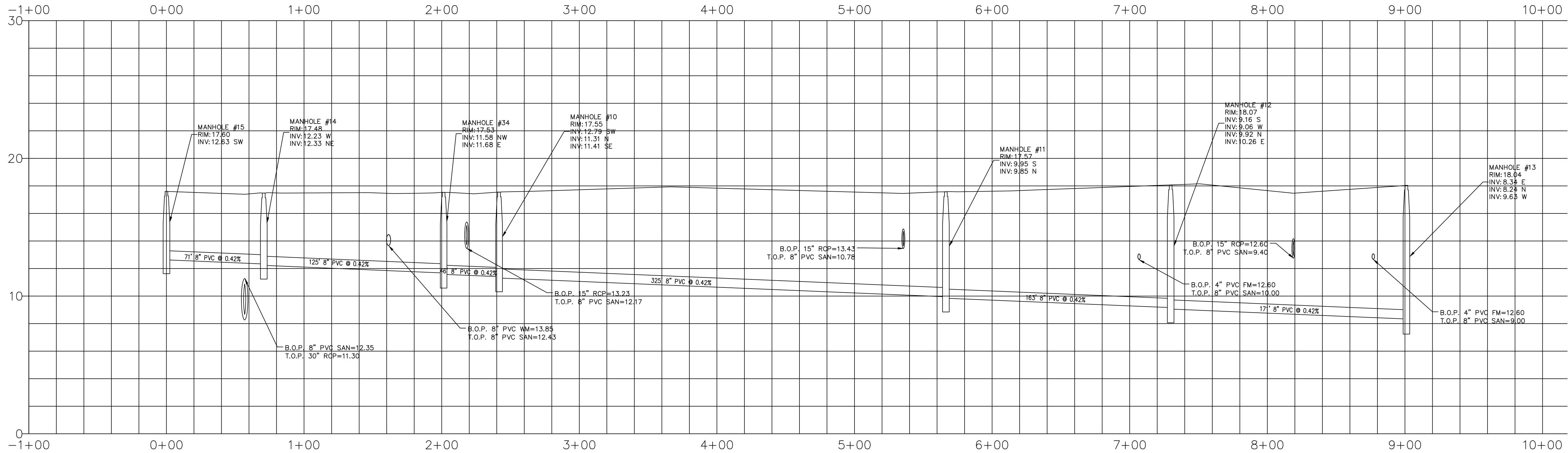
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MARTIN COUNTY, FLORIDA
WATER AND SEWER PROFILES

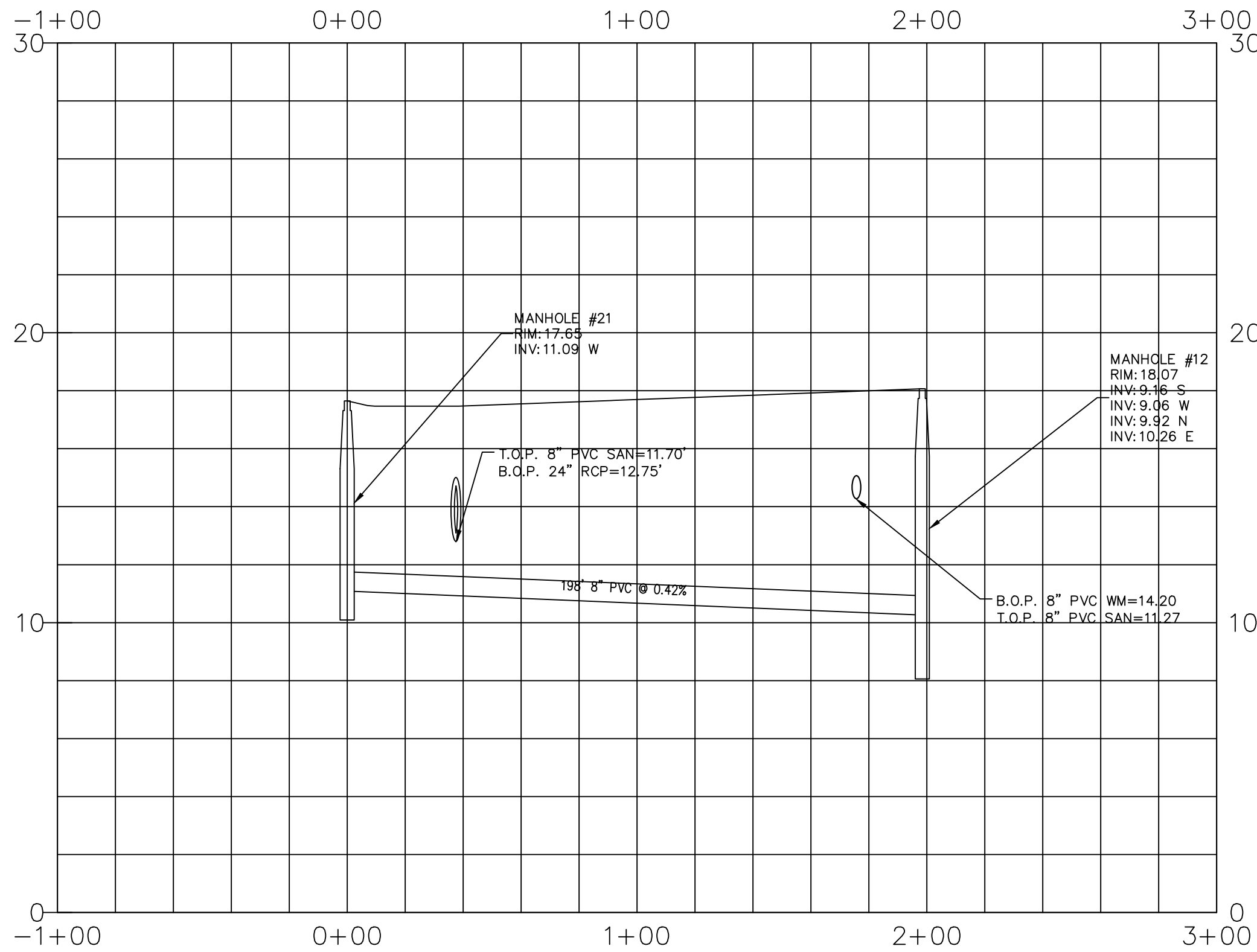
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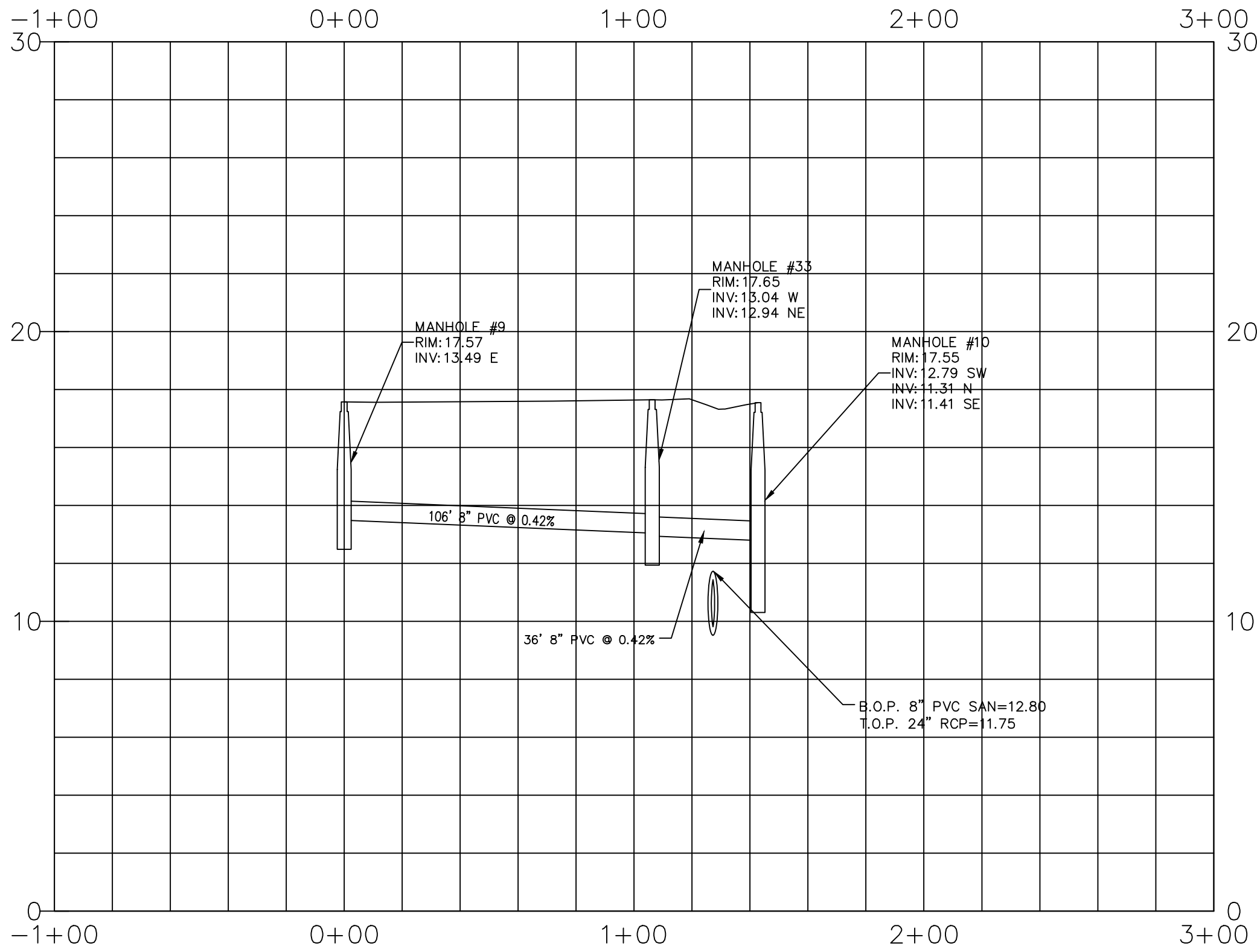
DATE	DRAWN	PROJECT ENGINEER	PROJECT MANAGER	CHECKED
SEPT 2019	KL	ACS	KBJ	ACS
JOB NO. 16042.02				



SEWER PROFILE 4
SEE SHEETS WS-5 & WS-8
VERTICAL SCALE: 1"=4'
HORIZONTAL SCALE: 1"=40'



SEWER PROFILE 5
SEE SHEETS WS-5 & WS-6
VERTICAL SCALE: 1"=4'
HORIZONTAL SCALE: 1"=40'



SEWER PROFILE 6
SEE SHEETS WS-5
VERTICAL SCALE: 1"=4'
HORIZONTAL SCALE: 1"=40'

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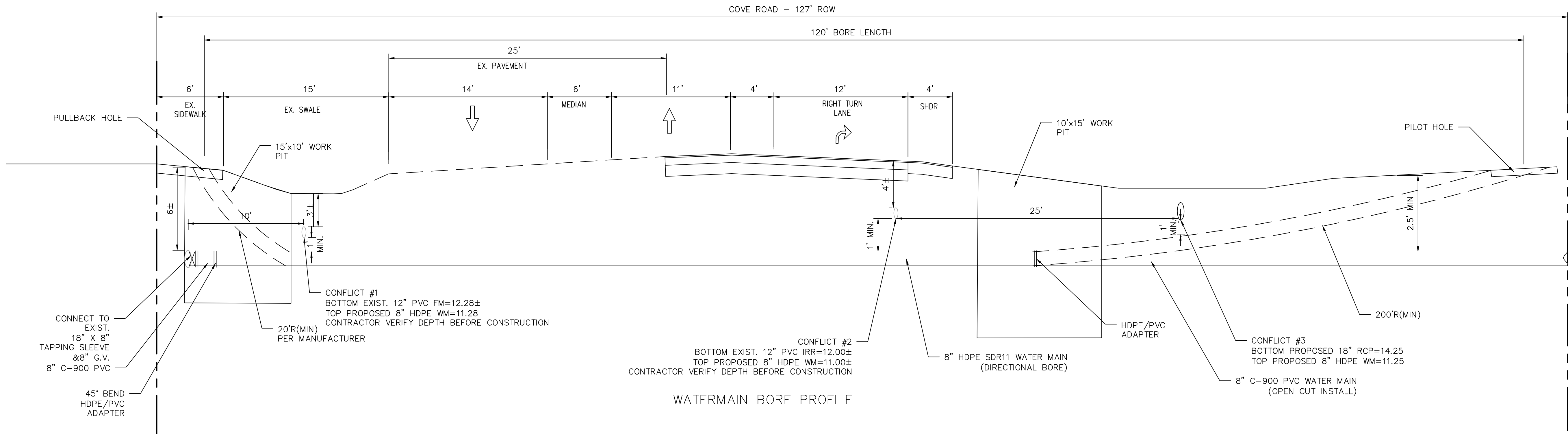
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NO. 72235

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WATER AND SEWER PROFILES

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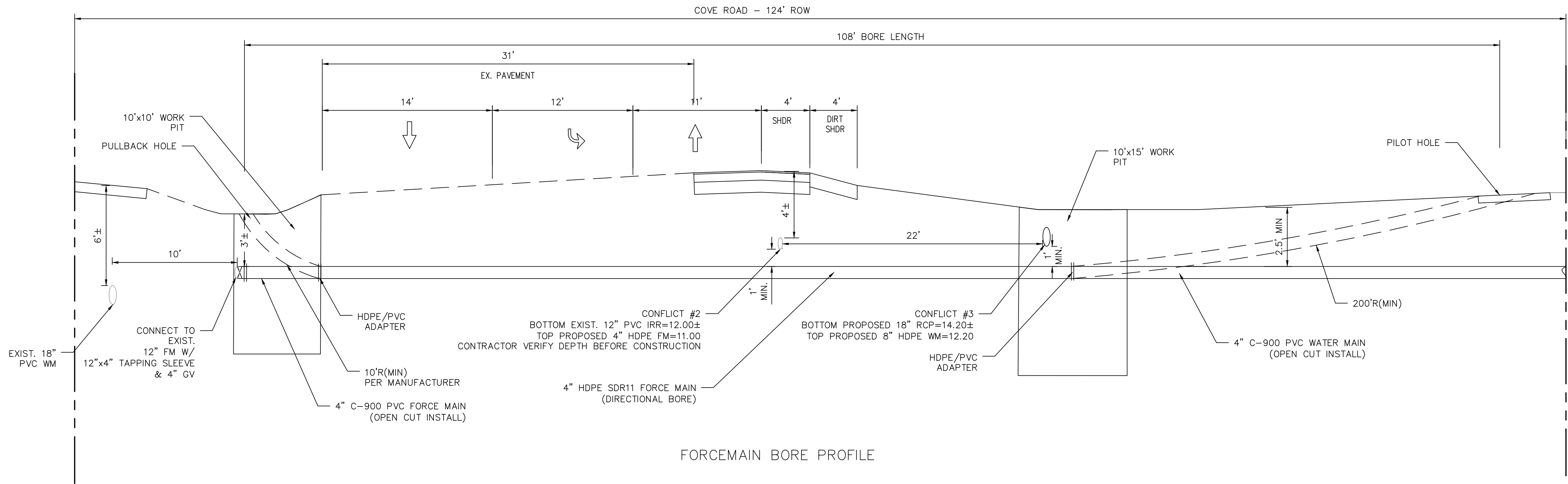
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DATE	DRAWN	PROJECT ENGINEER	PROJECT MANAGER	CHECKED
SEPT 2019	KL	ACS	KBJ	ACS
10/19				
JOB NO. 16042.02				



WATERMAIN BORE PROFILE

N.T.S



FORCEMAIN BORE PROFILE

N.T.S

GENERAL DIRECTIONAL DRILL NOTES

1. MINIMUM ACCEPTED DRILL RADIUS IS 200 TIMES THE HDPE DIAMETER NOT EXCEEDING 80% OF RECOMMENDED MANUFACTURER'S MAXIMUM BENDING RADIUS.

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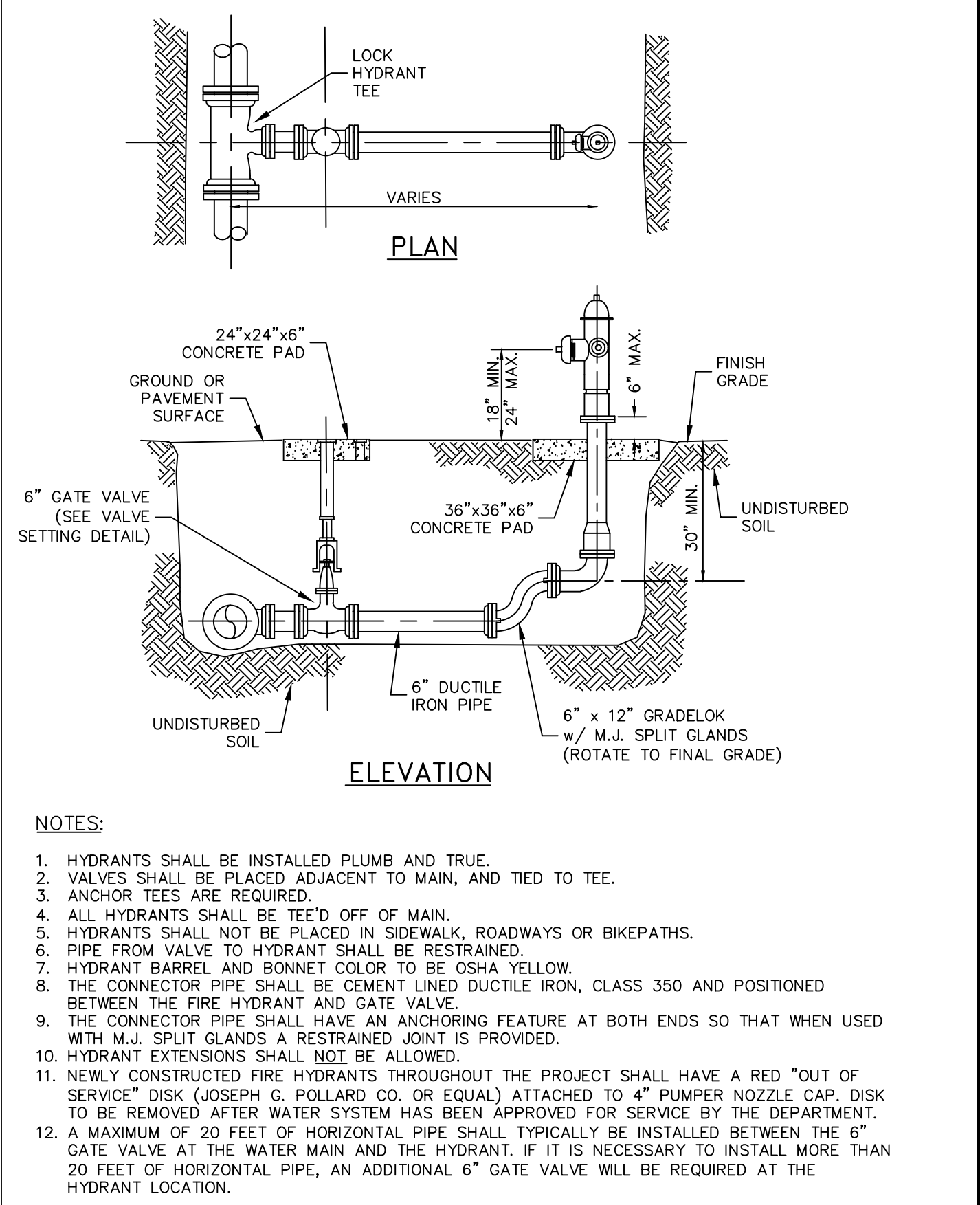
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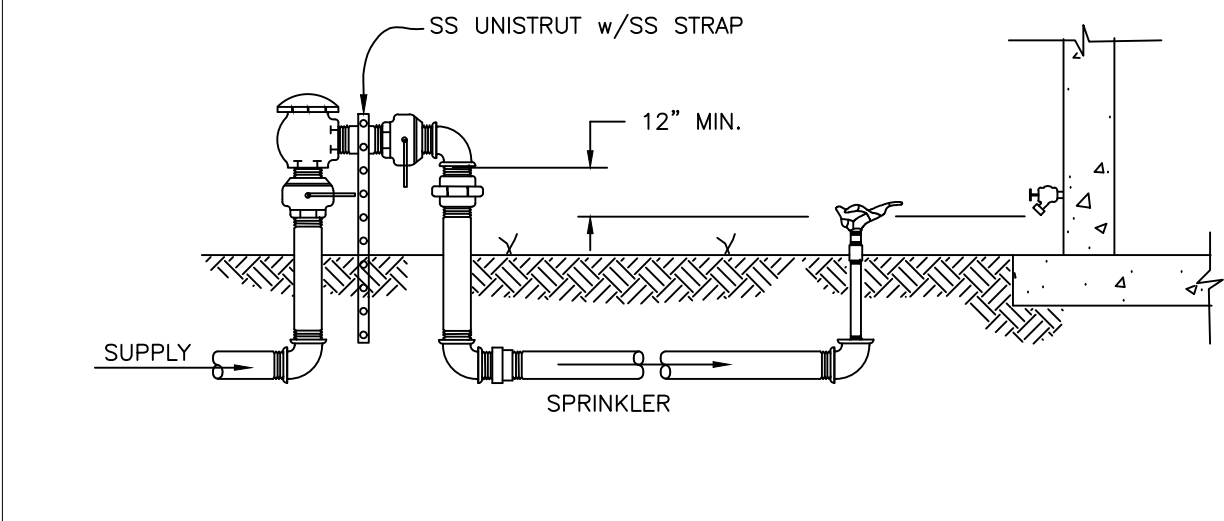
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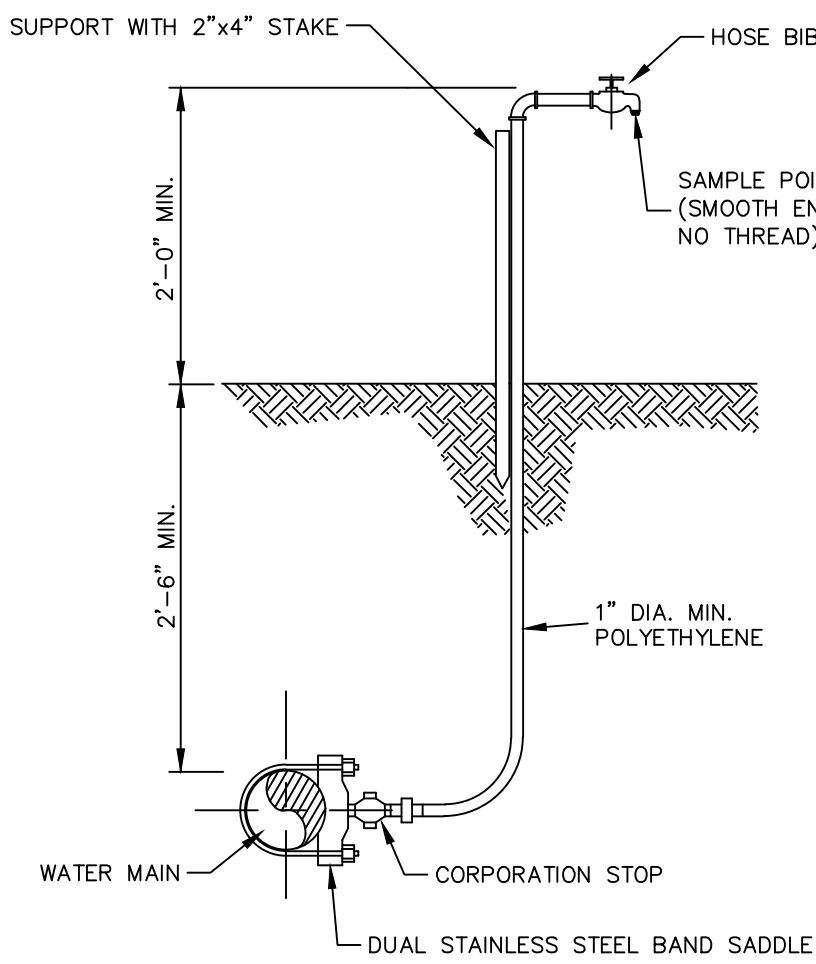


FIRE HYDRANT INSTALLATION
DETAIL AND NOTES
Dwg 7
Revised: AUGUST 2016



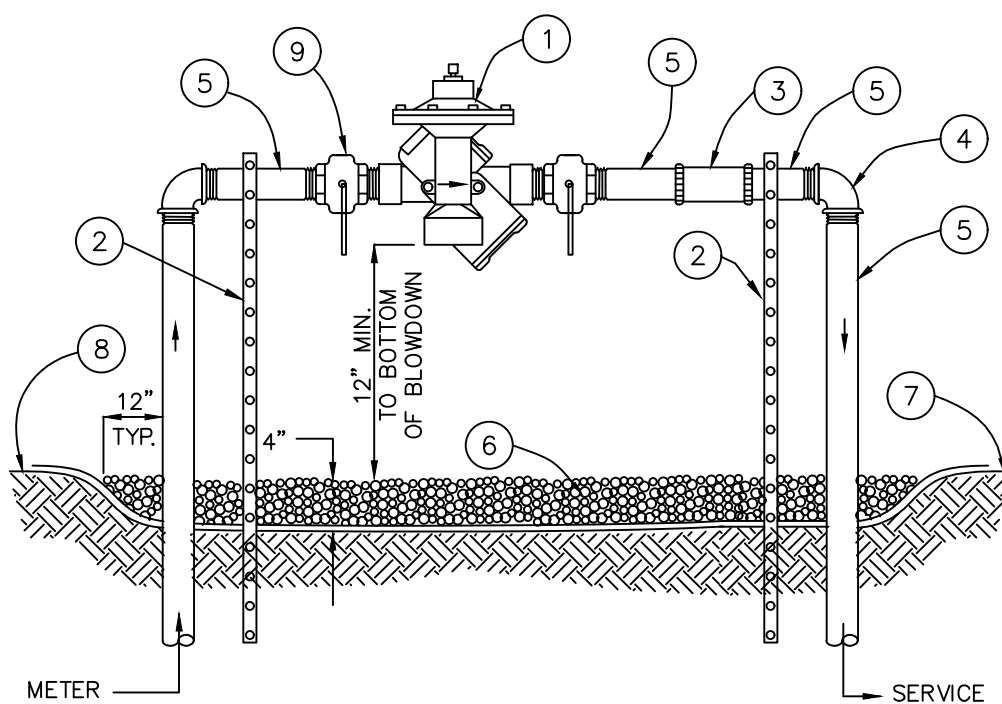
- NOTES:**
- THE PRESSURE VACUUM BREAKER (P.V.B.) CANNOT BE INSTALLED WHERE IT WILL BE SUBJECTED TO BACK PRESSURE. IT PROVIDES PROTECTION AGAINST BACK-SIPHONAGE OF BOTH POLLUTANTS AND CONTAMINANTS.
 - EACH P.V.B. SHALL BE INSTALLED IN AN ACCESSIBLE LOCATION TO FACILITATE INSPECTION AND SERVICING.
 - EACH P.V.B. SHALL BE INSTALLED ON THE MAIN LINE TO THE IRRIGATION SYSTEM AND AT LEAST 12 INCHES ABOVE THE HIGHEST SPRINKLER HEAD OR OUTLET. (VALVES MAY BE LOCATED DOWNSTREAM FROM THE DEVICE).
 - ALL ABOVE GROUND PIPING WILL BE TYPE "K" OR "L" COPPER TUBING WITH SWEAT FITTINGS.
 - IF CHEM FEED IS USED IN IRRIGATION LINE, THEN USE RPZ. RPZ MAY BE USED IN LIEU OF PRESSURE VACUUM BREAKER.

PRESSURE - TYPE VACUUM BREAKER
(P.V.B.) (IRRIGATION SYSTEM)
Dwg 12
Revised: AUGUST 2016



- NOTES:**
- SAMPLE POINT SHOULD BE A SERVICE LINE.
 - AFTER SAMPLING IS COMPLETED AND APPROVED, SHUT OFF CORP. STOP, REMOVE TUBING, PLUG WITH BRASS PLUG AND LOCATE FOR RECORD DRAWINGS.
 - MOUNT METAL OR PLASTIC TAG INDICATING "SAMPLE POINT - DO NOT TURN OFF"

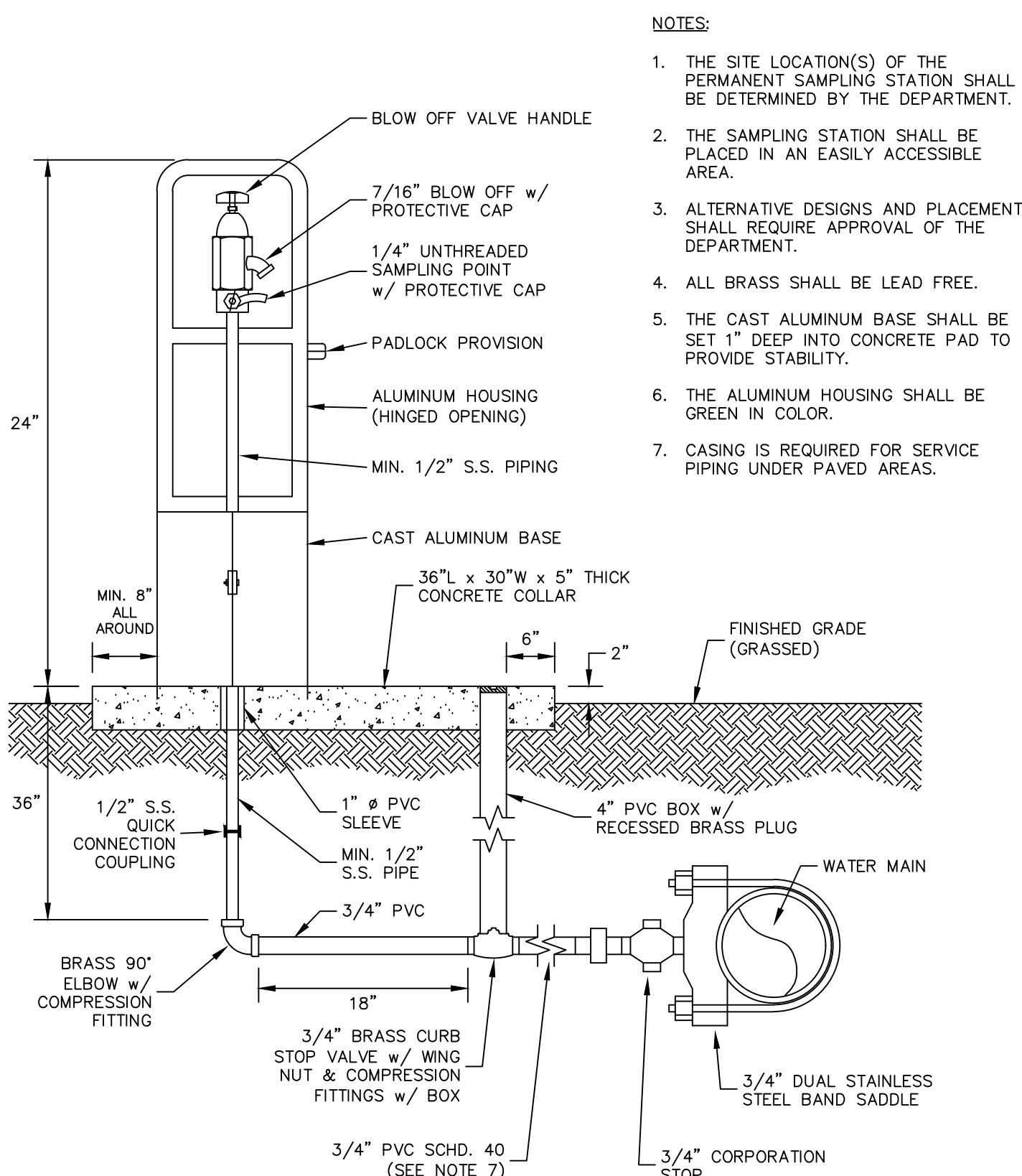
SAMPLE POINT DETAIL
Dwg 9
Revised: AUGUST 2016



MATERIALS		
ITEM	QUANT.	DESCRIPTION
1	1	2" BACKFLOW PREVENTER
2	2	1" S.S. UNISTRUT W/ S.S. STRAPS
3	1	2" COUPLING - COMPRESSION
4	2	2" X 90° ELBOW
5	4	2" X 6" NIPPLES
6		PEA GRAVEL
7		FILTER FABRIC
8		FINISHED GRADE
9	2	BALL VALVE

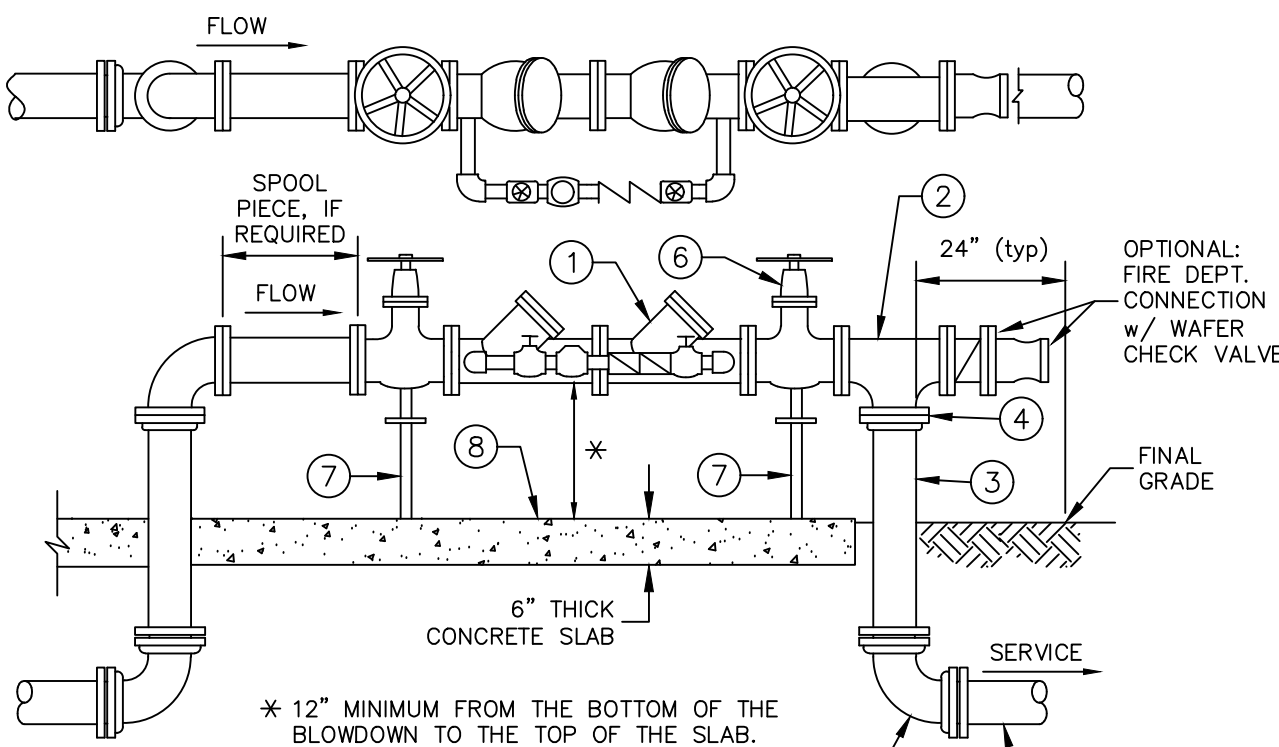
- NOTES:**
- INSTALLATION SHOWN ABOVE IS FOR A 2" SERVICE. CHANGE PIPING MATERIALS ACCORDINGLY FOR SERVICE SIZE.
 - USE COPPER, BRASS OR STAINLESS STEEL FOR FITTINGS AND PIPE MATERIAL.

REDUCED PRESSURE BACKFLOW PREVENTER
SINGLE SERVICE, 3/4", 1", 1-1/2" AND 2"
Dwg 13
Revised: AUGUST 2016



- NOTES:**
- THE SITE LOCATION(S) OF THE PERMANENT SAMPLING STATION SHALL BE DETERMINED BY THE DEPARTMENT.
 - THE SAMPLING STATION SHALL BE PLACED IN AN EASILY ACCESSIBLE AREA.
 - ALTERNATIVE DESIGNS AND PLACEMENT SHALL REQUIRE APPROVAL OF THE DEPARTMENT.
 - ALL BRASS SHALL BE LEAD FREE.
 - THE CAST ALUMINUM BASE SHALL BE SET 1" DEEP INTO CONCRETE PAD TO PROVIDE STABILITY.
 - THE ALUMINUM HOUSING SHALL BE GREEN IN COLOR.
 - CASING IS REQUIRED FOR SERVICE PIPING UNDER PAVED AREAS.

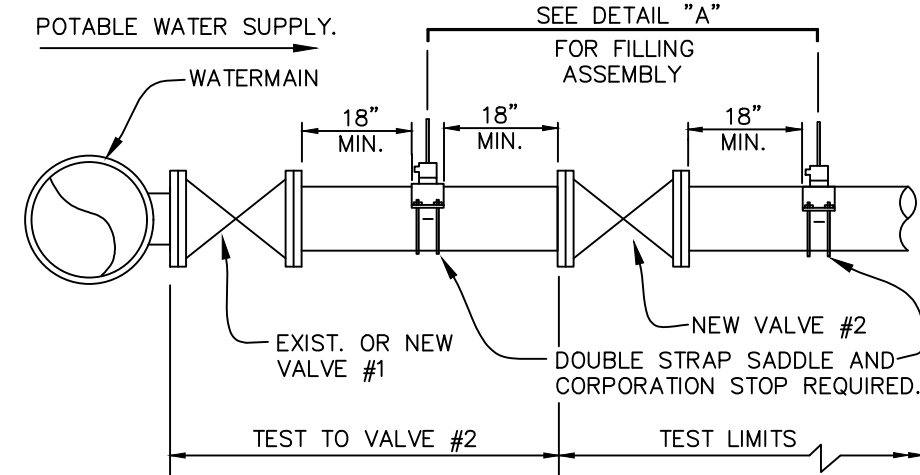
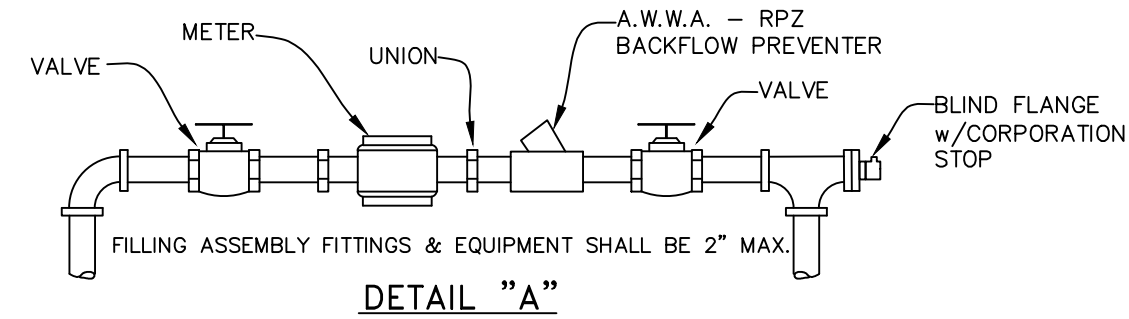
PERMANENT SAMPLING POINT DETAIL
Dwg 10
Revised: AUGUST 2016



MATERIAL		
ITEM	QUANT.	DESCRIPTION
1	1	2", 4", 6", 8" DOUBLE CHECK DETECTOR BACKFLOW PREVENTER
2	2	2", 4", 6", 8" TEE (FLANGE-FLANGE)
3	*	2", 4", 6", 8" PIPE, DUCTILE IRON (CLASS 350)
4	2	2", 4", 6", 8" ADAPTER, FLANGE, D.I.P.
5	2	2", 4", 6", 8" PIPE
6	2	2", 4", 6", 8" GATE VALVE, C.I., (FLANGE-FLANGE) OS&Y
7	2	ADJUSTABLE PIPE SUPPORTS (316 SS)
8	1	6" CONCRETE SLAB
9	3	BEND - 90° (MJ-MJ)

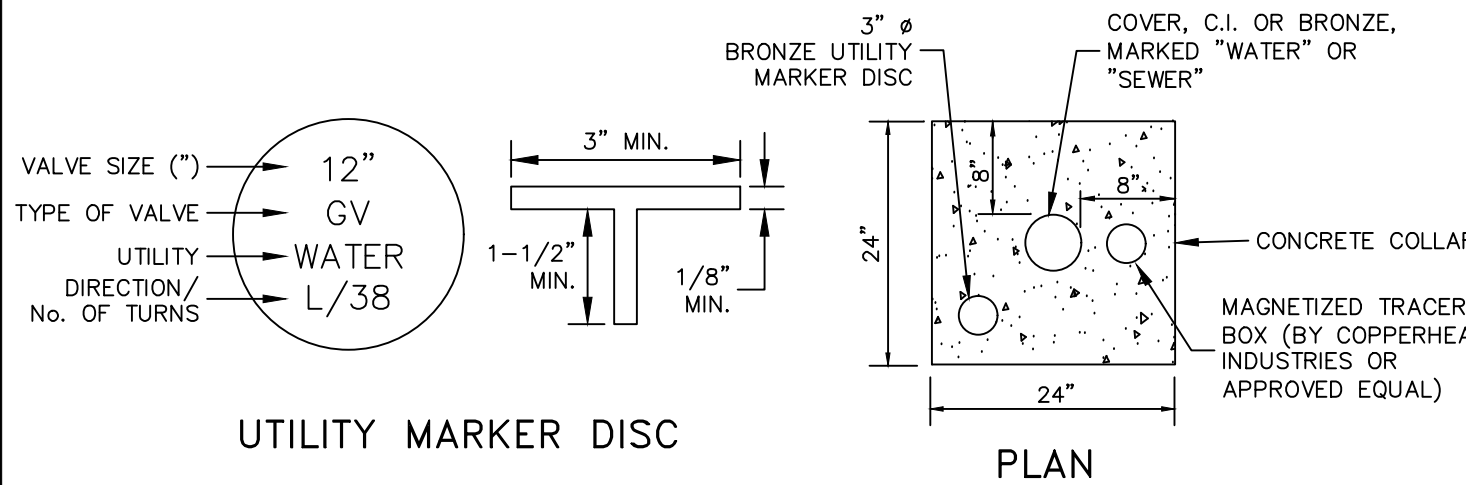
- NOTES:**
- FIELD ADJUST AND CUT ITEM 3 TO PROPER LENGTH. THIS TYPE OF CONSTRUCTION IS DESIGNED FOR LIMITED WORKING AREA.
 - ALL EXPOSED DUCTILE IRON PIPES AND FITTINGS SHALL BE PAINTED "RED". PAINT SPECIFICATIONS MUST BE SUBMITTED TO MARTIN COUNTY UTILITIES PRIOR TO APPLICATION.
 - DETECTOR METER SHALL READ IN GALLONS AND SHALL BE 5/8" NEPTUNE MAGNETIC DRIVE, MODEL T-10.

FIRE LINE
DOUBLE CHECK DETECTOR ASSEMBLY
Dwg 17
Revised: AUGUST 2016

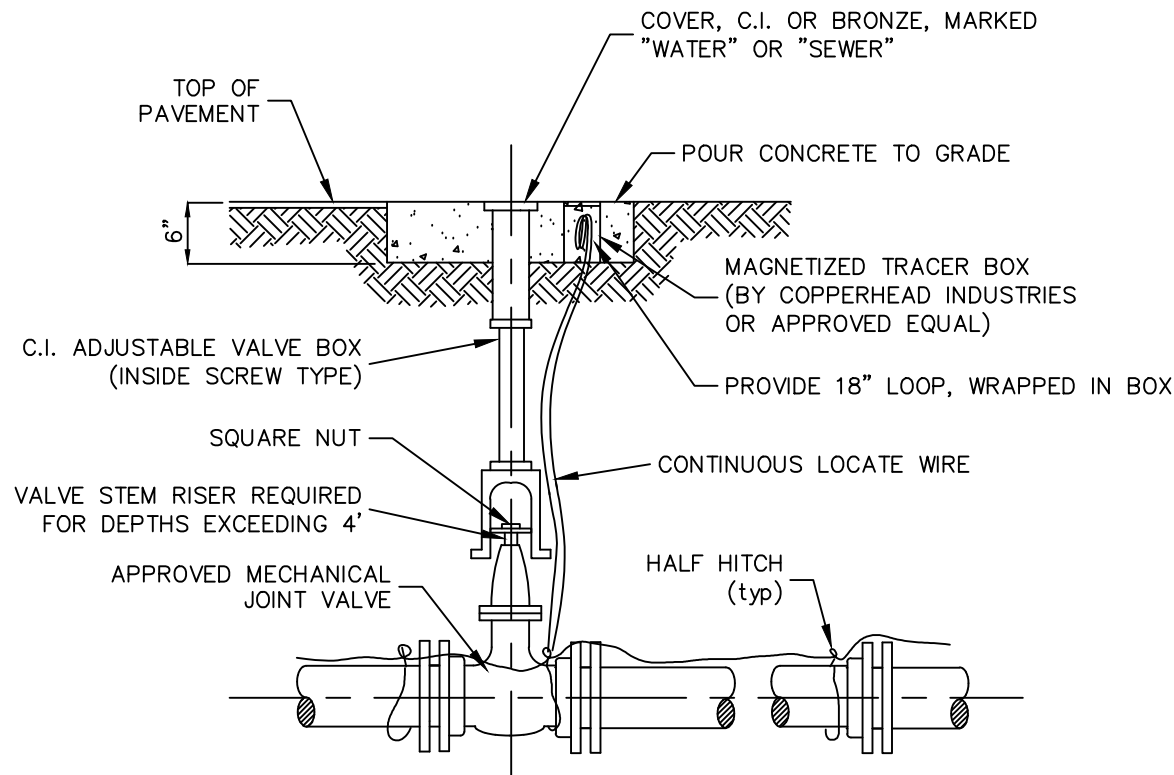


- NOTES:**
- BOTH VALVES SHALL BE KEPT CLOSED EXCEPT FOR FILLING, FLUSHING AND BACTERIOLOGICAL TESTING PURPOSES.
 - DEPARTMENT SHALL BE NOTIFIED BEFORE FILLING AND FLUSHING.
 - PRESSURE TEST PUMP CONNECTS TO SERVICE LINE OR BLOWOFF. NO EXTRA TAPS ARE PERMITTED UNLESS PRECEDING ARE NOT PRESENT IN TEST SECTION.
 - PRESSURE GAUGE TO BE LOCATED IN VICINITY OF TEST PUMP CONNECTION.
 - GAUGE AND RISER TO BE REMOVED AFTER PRESSURE TEST.
 - REMOVE TEMPORARY CONNECTION AT CORPORATION STOPS AFTER FILLING AND FLUSHING HAS BEEN COMPLETED.
 - INJECT CHLORINE ON PROJECT SIDE OF BACKFLOW PREVENTER.
 - CONTRACTOR TO PROVIDE AN RPZ CERTIFICATION (LESS THAN 1 YEAR) PRIOR TO INSTALLATION.

DOUBLE VALVE DETAIL AND FILLING
AND FLUSHING CONNECTION
Dwg 11
Revised: AUGUST 2016



UTILITY MARKER DISC



ELEVATION

- NOTES:**
- A LOCATION BALL (3M EMS BALL MARKERS; WATER/BLUE, MODEL No. 1403-XR; SEWER/GREEN, MODEL No. 1404-XR OR EQUAL) SHALL BE INSTALLED AT EACH FITTING AND/OR EVERY 100 FEET OF SEPARATION.
 - FOR DEEP VALVE INSTALLATIONS, A 6" C-900 PVC EXTENSION MAY BE USED TO BRING VALVE BOX TO GRADE.

VALVE SETTING DETAIL
Dwg 18
Revised: AUGUST 2016

REVISIONS		NO.	DATE	REMARKS	BY

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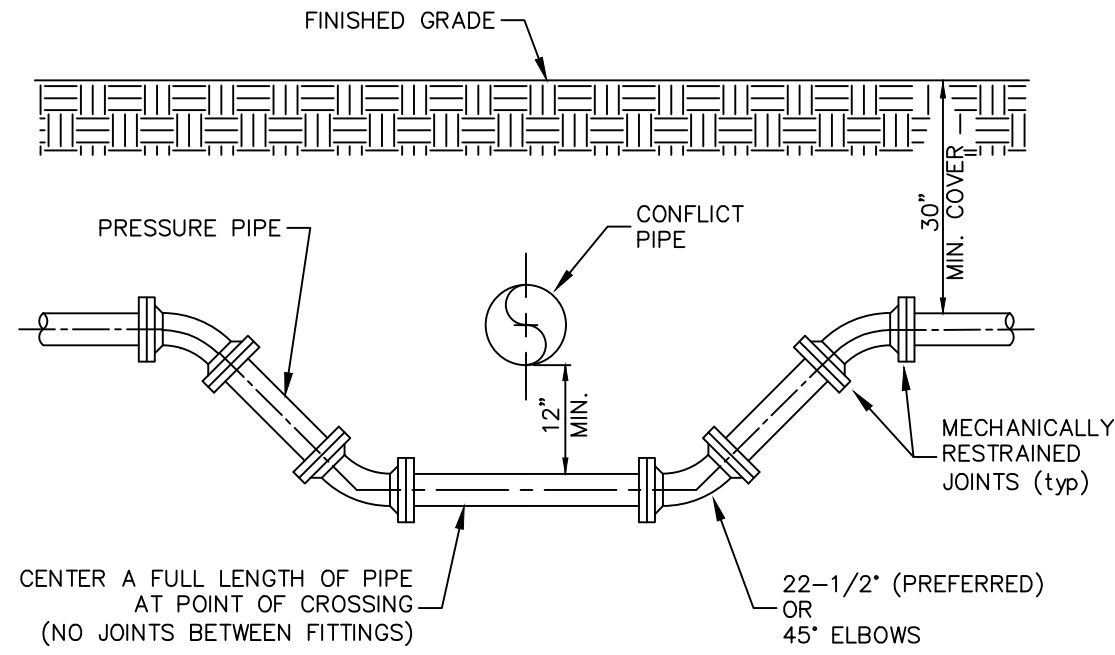
ADAM SWANEY, P.E.
NO. 72235

COVE ROYALE-PHASE I
TLH-82 DOT, LLC
MARTIN COUNTY, FLORIDA
WATER AND SEWER DETAILS

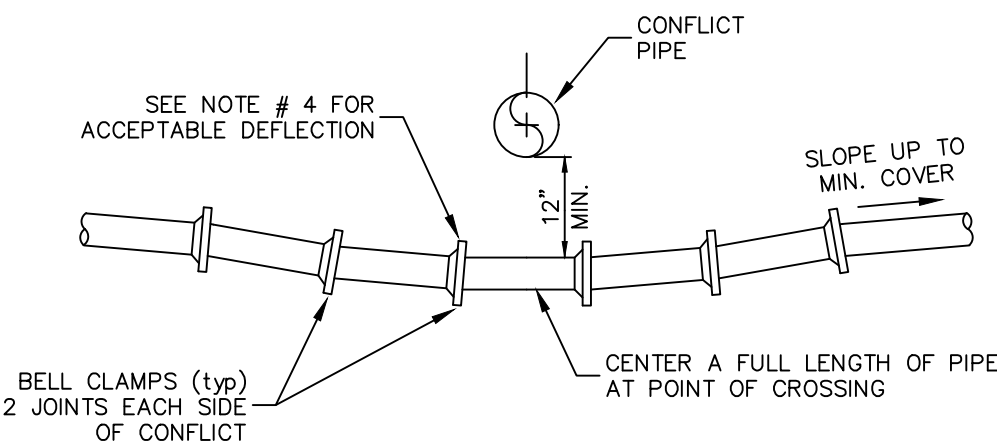
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DATE	SEPT 2019	DRAWN	KL	PROJECT ENGINEER	ACS	PROJECT MANAGER	KBJ	CHECKED	ACS

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JOB NO.
16042.02



FITTING TYPE



DEFLECTION TYPE

NOTES:

1. THESE METHODS ARE TO BE USED WHEN INSUFFICIENT COVER EXISTS TO ALLOW PRESSURE PIPE TO CROSS ABOVE CONFLICT PIPE WITH 6" VERTICAL SEPARATION AND MAINTAIN REQUIRED COVER TO FINISHED GRADE.
2. FITTINGS SHALL BE RESTRAINED WITH RETAINER GLANDS.
3. THE DEFLECTION TYPE CROSSING IS PREFERRED.
4. DO NOT EXCEED 50% OF MANUFACTURER'S RECOMMENDED MAXIMUM JOINT DEFLECTION.

PRESSURE PIPE CONFLICT DETAIL
Dwg 20

Revised: AUGUST 2016

MIN. LENGTH (IN FEET) OF PIPE TO BE RESTRAINED
(SOURCES: EBAA IRON RESTRAINT LENGTH CALCULATION PROGRAM FOR PVC PIPE, RELEASE 3.1, AND DIPRA THRUST RESTRAINT FOR DUCTILE IRON PIPE, RELEASE 3.2)

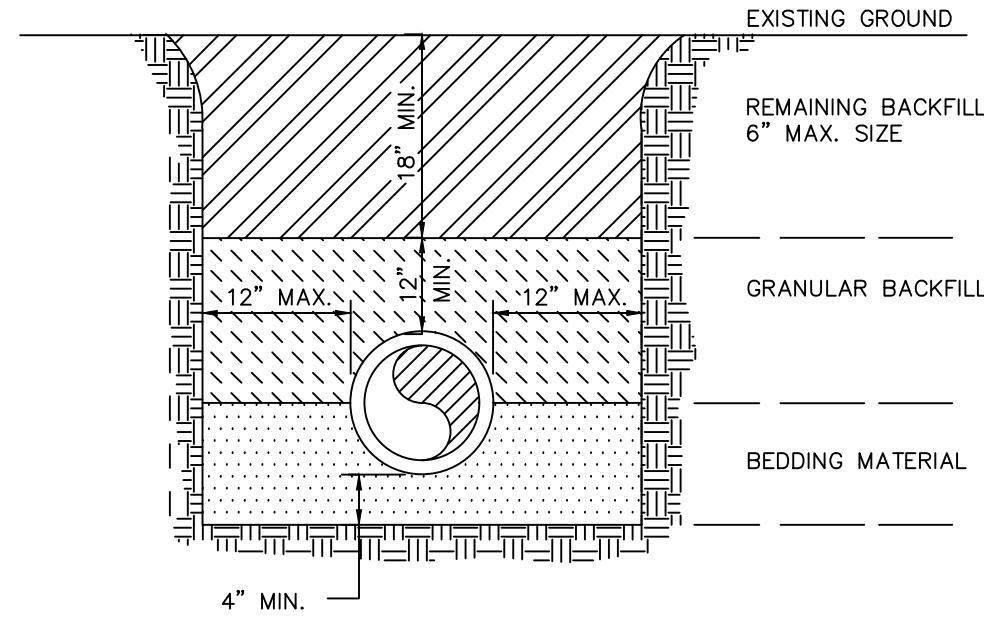
FITTING TYPE		PIPE SIZE							
		4"	6"	8"	10"	12"	16"	20"	24"
90° HORIZ. BEND		14	20	25	30	35	45	54	62
45° HORIZ. BEND		6	8	11	13	15	19	22	26
22.5° HORIZ. BEND		3	4	5	6	7	9	11	12
11.25° HORIZ. BEND		1	2	3	3	4	4	5	6
90° VERT. OFFSET	UPPER BEND	29	41	53	64	74	95	115	134
	LOWER BEND	7	10	13	16	19	25	30	35
45° VERT. OFFSET	UPPER BEND	12	19	24	29	34	39	48	56
	LOWER BEND	3	4	6	7	8	10	12	15
22.5° VERT. OFFSET	UPPER BEND	6	9	12	14	17	19	23	27
	LOWER BEND	1	2	4	4	5	6	7	
11.25° VERT. OFFSET	UPPER BEND	3	4	6	7	8	9	11	13
	LOWER BEND	1	1	1	2	2	2	3	3
PLUG (DEAD END)		32	45	59	70	83	107	129	151
IN-LINE VALVE		32	45	45	45	45	55	65	80
TEE (BRANCH RESTRAINT)	4" x Ø	23	—	—	—	—	—	—	—
	6" x Ø	21	35	—	—	—	—	—	—
	8" x Ø	18	34	47	—	—	—	—	—
	10" x Ø	16	32	46	58	—	—	—	—
	12" x Ø	13	30	44	57	69	—	—	—
	16" x Ø	7	26	41	55	67	90	—	—
	20" x Ø	1	21	38	52	65	88	109	—
	24" x Ø	1	16	34	49	62	86	108	129
	30" x Ø	1	8	28	44	58	83	106	127
	36" x Ø	1	1	22	39	54	80	103	124
REDUCER (LARGER PIPE RESTRAINT)	42" x Ø	1	1	15	33	49	77	100	122
	48" x Ø	1	1	7	27	44	73	97	120
	6" x Ø	23	—	—	—	—	—	—	—
	8" x Ø	38	25	—	—	—	—	—	—
	10" x Ø	57	43	24	—	—	—	—	—
	12" x Ø	72	60	44	41	—	—	—	—
	16" x Ø	99	90	78	75	45	—	—	—
	20" x Ø	123	116	107	105	81	45	—	—
	24" x Ø	146	140	132	131	111	82	45	—

NOTES:

1. THE DATA IN THE ABOVE TABLE ARE BASED UPON THE FOLLOWING INSTALLATION CONDITIONS:
SOIL TYPE—SAND TEST PRESSURE—150 PSI DEPTH OF BURY—3'
TRENCH TYPE—3 SAFETY FACTOR— 1.5
MINIMUM PIPE LENGTH ALONG TEE RUN—5'
2. THE RESTRAINED PIPE LENGTHS APPLY TO DUCTILE IRON AND PVC PIPE.
3. ALL JOINTS BETWEEN UPPER AND LOWER BENDS SHALL BE RESTRAINED.
4. RESTRAINED PIPE LENGTHS APPLY TO PIPE ON BOTH SIDES OF VALVES AND FITTINGS.
5. DESIGN ENGINEER SHALL BE RESPONSIBLE FOR PROPERLY SIZING THE LENGTH OF PIPE TO BE RESTRAINED.

MECHANICAL JOINT ANCHORING REQUIREMENTS
Dwg 21

Revised: AUGUST 2016

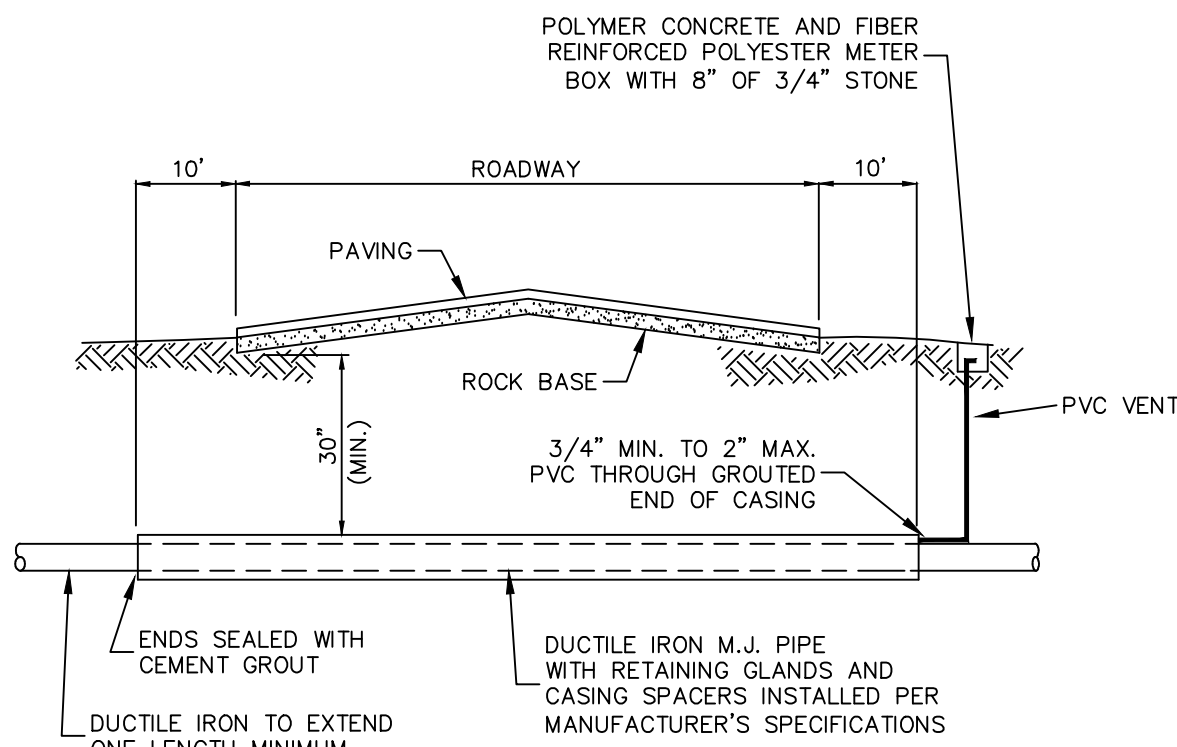


NOTES:

1. BEDDING MATERIAL SHALL BE HAND PLACED IN 6" LIFTS AND SHALL CONSIST OF IN-SITU GRANULAR MATERIAL OR WASHED AND GRADED LIMEROCK 3/8"-7/8" SIZING. UNSUITABLE IN-SITU MATERIALS SUCH AS MUCK, DEBRIS AND LARGER ROCK SHALL BE REMOVED.
2. THE PIPE SHALL BE FULLY SUPPORTED FOR ITS ENTIRE LENGTH WITH APPROPRIATE COMPACTION UNDER THE PIPE HAUNCHES.
3. THE PIPE SHALL BE PLACED IN A DRY TRENCH.
4. BACKFILL SHALL BE DONE WITH APPROVED MATERIAL, CLEAN AND FREE OF ROCKS, MUCK AND OTHER DELETERIOUS MATTER AND COMPACTED BENEATH THE HAUNCHES OF THE PIPE USING MECHANICAL TAMPERS TO 100% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.
5. BACKFILL TO BE COMPACTED ALONG THE SIDES OF THE PIPE AND TO A POINT ONE FOOT ABOVE THE TOP OF THE PIPE TO 100% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-99.
6. A. WHERE PAVEMENT IS TO BE CONSTRUCTED OVER THE PIPE THE REMAINING BACKFILL SHALL BE COMPACTED IN 6 INCH LAYERS AND COMPACTED TO 95% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
B. WHERE "NO" PAVEMENT IS TO BE CONSTRUCTED OVER THE PIPE THE REMAINING FILL SHALL BE COMPACTED IN 6 INCH LAYERS TO A DENSITY 90% MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
7. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL TRENCH SAFETY REGULATIONS

TYPICAL TRENCH DETAIL
Dwg 23

Revised: AUGUST 2016



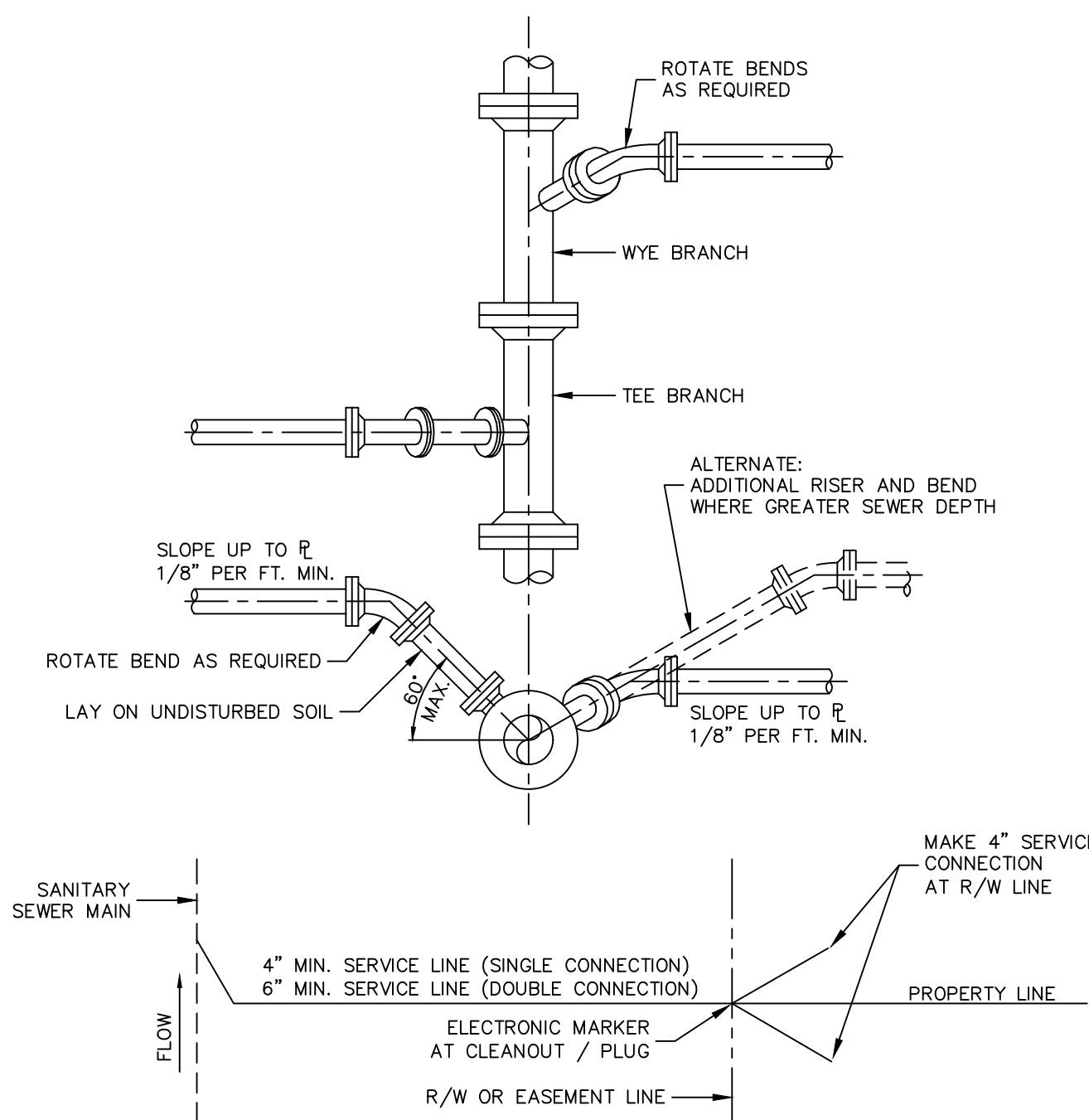
CARRIER PIPE SIZE	MINIMUM STEEL CASING	MINIMUM WALL THICKNESS
4"	12"	.250
6"	16"	.250
8"	18"	.312
10"	20"	.375
12"	24"	.375
16"	30"	.500
18"	30"	.500
20"	36"	.562
24"	36"	.562

NOTE:

1. LOCATOR WIRE SHALL BE MIN. #10 GAUGE MULTI-STRAND WIRE FOR ALL BORE & JACKING

CASING INSTALLATION DETAIL
Dwg 26

Revised: AUGUST 2016

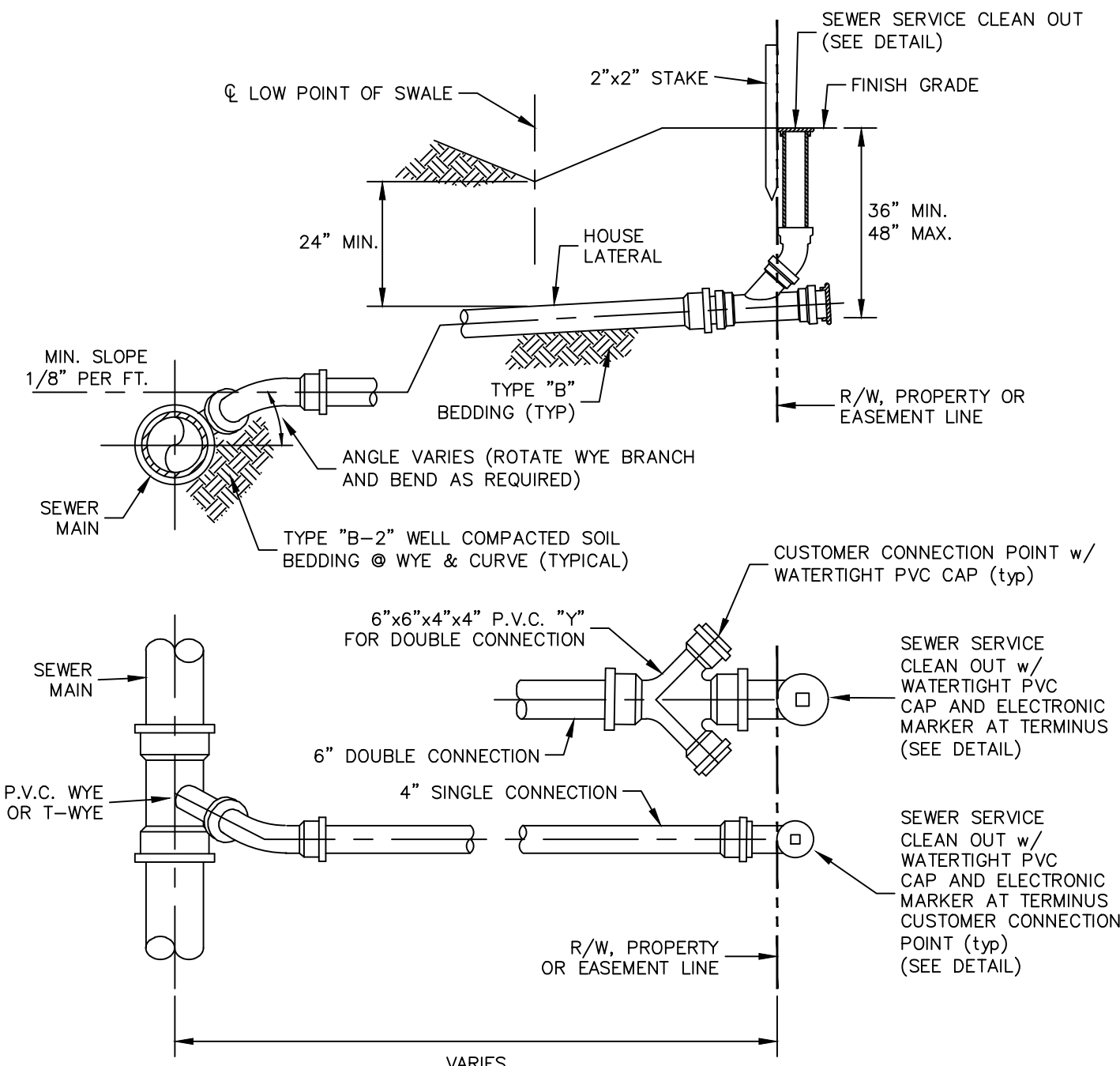


NOTES:

1. SERVICE LATERALS SHALL TERMINATE WITH A CLEANOUT AT R.
2. LATERAL DEPTH AT R SHALL BE (3) FEET MIN., PLUGGED WATERTIGHT AND MARKED WITH 2" x 2" TREATED STAKE AND ELECTRONIC MARKER.

TYPICAL SEWER SERVICE CONNECTION
Dwg 31

Revised: AUGUST 2016

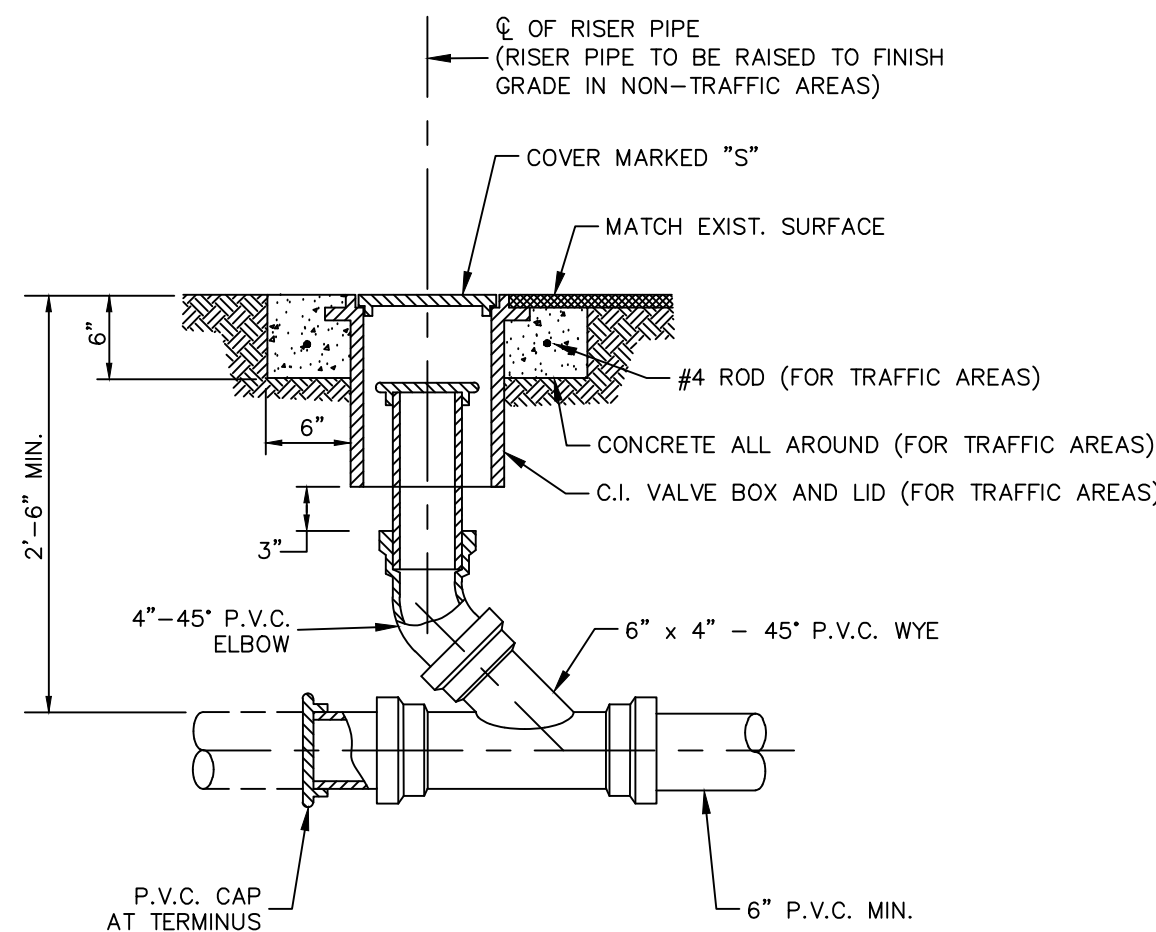


NOTES:

1. INVERT OF LATERAL TO BE 36" FROM FINISHED GRADE EXCEPT ON " WATER LINE SIDE " OF STREET R/W WHERE IT SHALL DROP TO 48" AS SOON AS DEPTH OF SEWER MAIN PERMITS.
2. THIS DETAIL TO BE USED WHEN TOP OF SEWER MAIN IS LESS THAN 7'-0" DEEP.
3. INSTALL MAGNETIC MARKERS AT THE END OF EACH SERVICE LINE OR OPPOSITE WYES AND RECORD LOCATION.
4. SERVICE LATERALS SHALL TERMINATE WITH A CLEANOUT AT R.

SANITARY SEWER LATERAL DETAIL
Dwg 32

Revised: AUGUST 2016

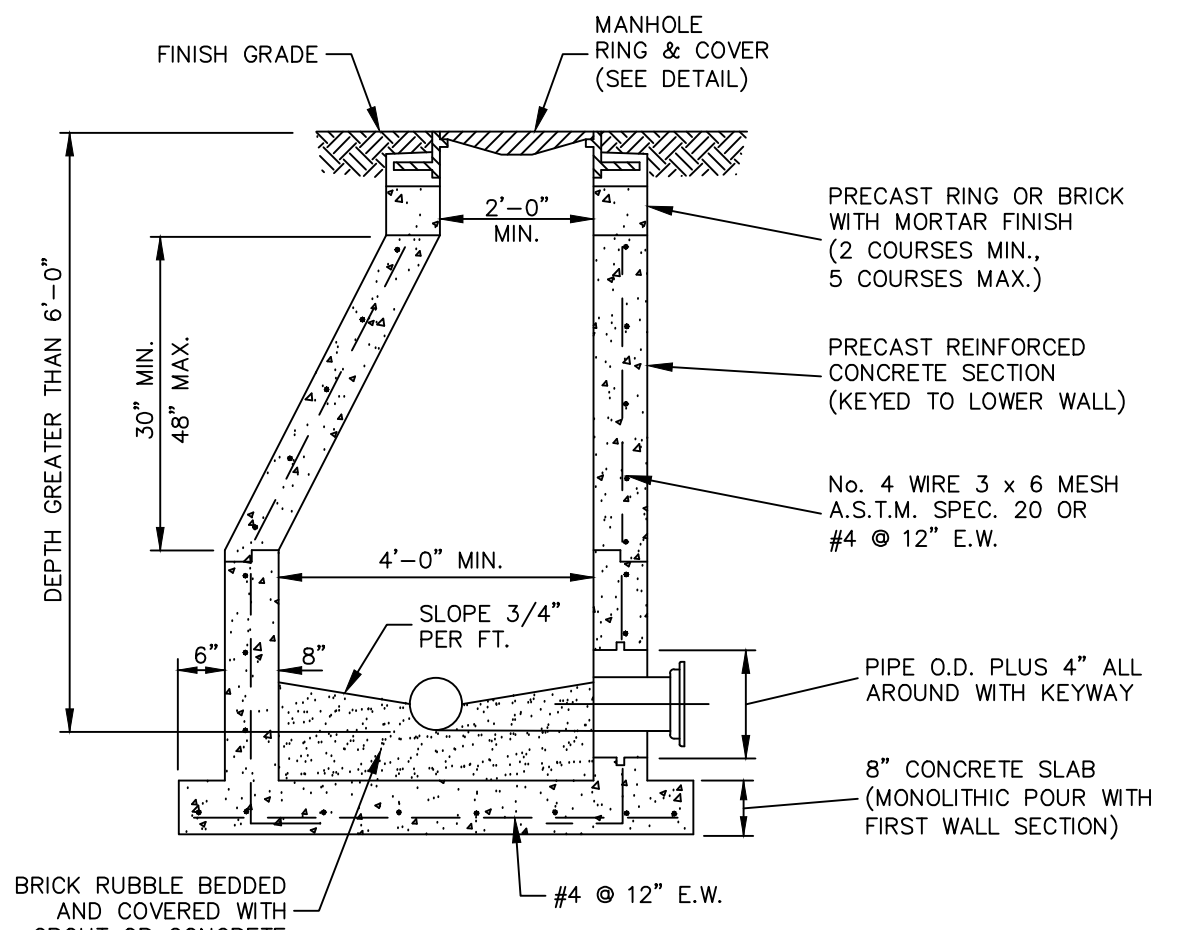


NOTES:

1. CONCRETE PAD W/ REBAR AND CAST IRON VALVE BOX TO BE INSTALLED IN TRAFFIC AREAS ONLY.

SEWER SERVICE CLEANOUT
Dwg 33

Revised: AUGUST 2016



NOTES:

1. PROVIDE 0.1' DROP THROUGH MANHOLE.
2. PRECAST CONCRETE TYPE II, 4000 P.S.I.
3. "RAMNEK" OR EQUAL AT ALL RISER JOINTS (1/2" THICK WITH WIDTH AT LEAST 1/2 THE WALL THICKNESS) WITH GROUT ON INSIDE AND OUTSIDE.
4. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON-SHRINKING GROUT.
5. FLOW CHANNELS SHALL BE CONSTRUCTED TO DIRECT INFLUENT INTO FLOW STREAM. (SEE DETAIL)
6. LIFT HOLES ARE PERMITTED.
7. ALL PIPE HOLES SHALL BE PRECAST OR CORE-DRILLED.
8. SAND COLLAR OR APPROVED RUBBER BOOT MUST BE USED WITH P.V.C. PIPE.
9. MANHOLE TO RECEIVE 2 COATS WATER BASED EPOXY (PRO TECH EW-1 OR APPROVED EQUAL) ON THE INTERIOR AND EXTERIOR. TERMINAL MANHOLES, I.E. THE LAST MANHOLE PRIOR TO DISCHARGE TO A LIFT STATION, SHALL RECEIVE 2 COATS OF WATER BASED EPOXY ON THE EXTERIOR (PRO TECH EW-1 OR APPROVED EQUAL). THE INTERIOR SHALL RECEIVE COATING OF 120 MILS OF REZCLAD E-1255 AR OR MIN. 1/2" SEWPER COAT OR IET SYSTEMS COATING (10 MILS PRIMARY COAT, 30 MILS INTERMEDIATE COAT, 5-10 MILS FINISH COAT) OR MIN. 1/2" REFRATT HAC 100.

STANDARD MANHOLE
Dwg 34

Revised: AUGUST 2016

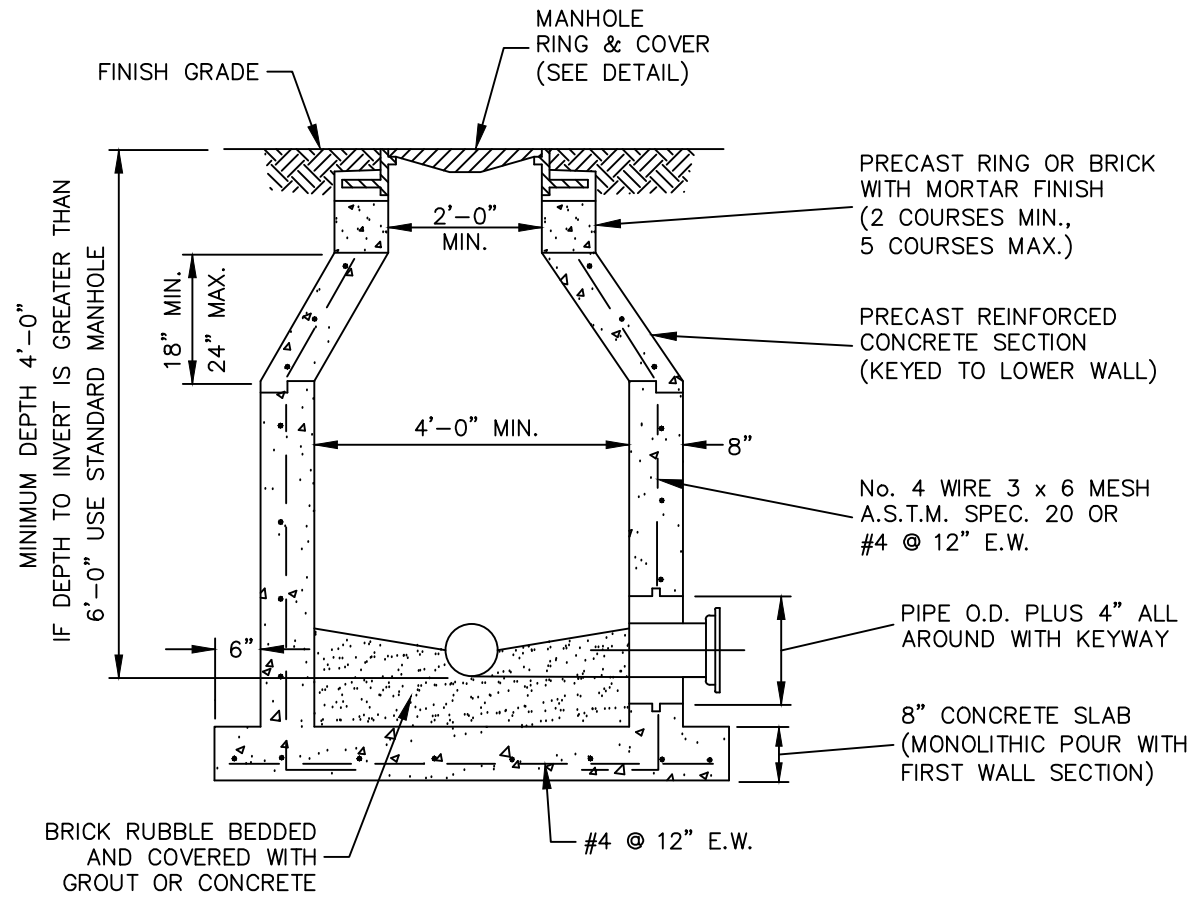
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COVE ROYALE-PHASE I TLH-82 DOT, LLC MARTIN COUNTY, FLORIDA WATER AND SEWER DETAILS

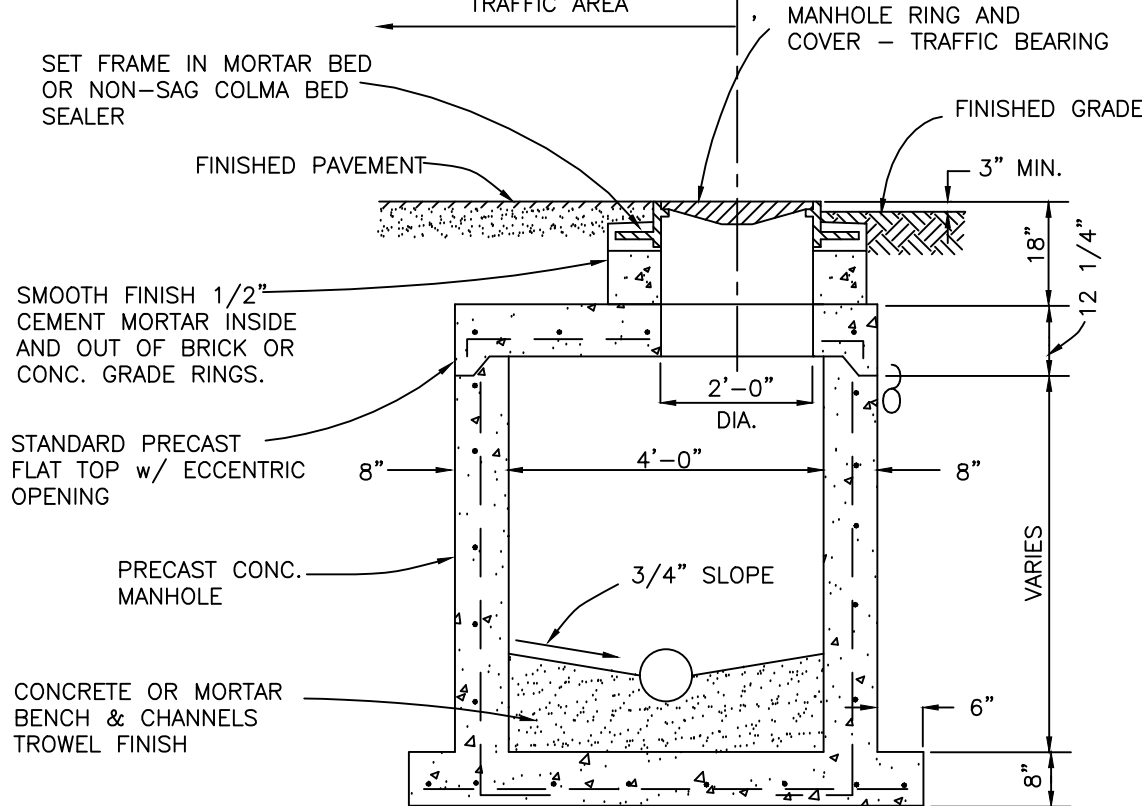
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DATE	DRAWN	KL	PROJECT ENGINEER	ACS	PROJECT MANAGER	KBJ	CHECKED	ACS
SEPT 2019	14	19						
J:\Land Projects\RD16042.02 Cove Royale\DWG16042.02 Eng.WSD.dwg	DATE: 10/17/2019 2:44 PM							
JOB NO. 16042.02								



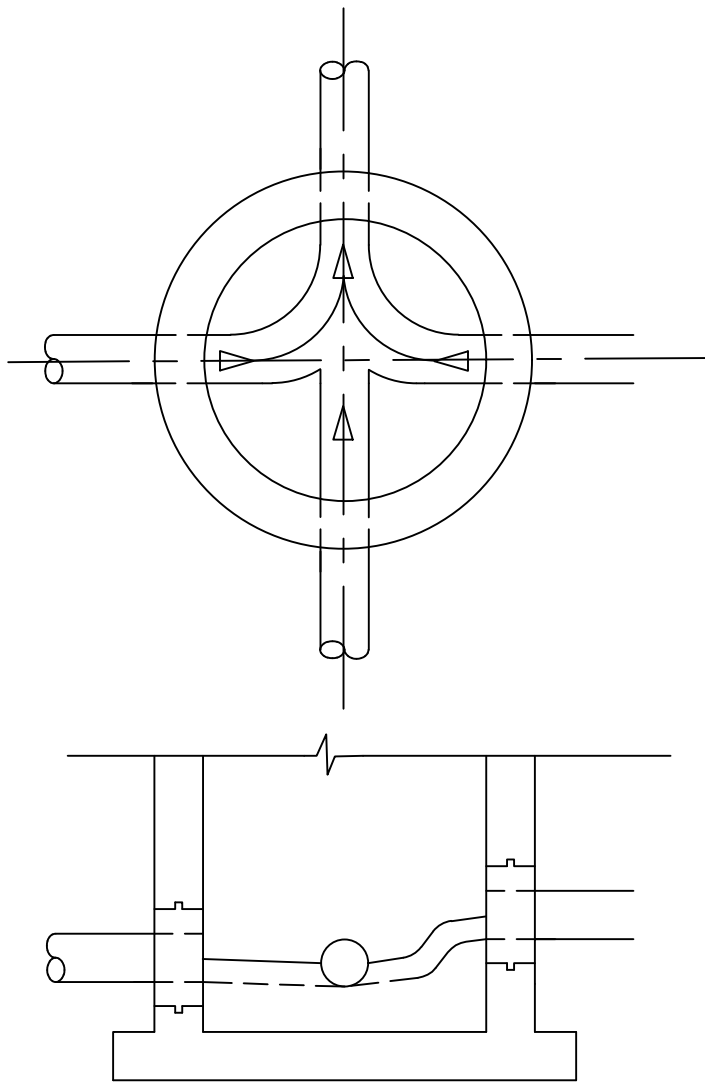
- NOTES:
1. PROVIDE 0.1' DROP THROUGH MANHOLE.
 2. PRECAST CONCRETE TYPE II, 4000 P.S.I.
 3. "RAMNEK" OR EQUAL AT ALL RISER JOINTS (1/2" THICK WITH WIDTH AT LEAST 1/2 THE WALL THICKNESS) WITH GROUT ON INSIDE AND OUTSIDE.
 4. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON-SHRINKING GROUT.
 5. FLOW CHANNELS SHALL BE CONSTRUCTED TO DIRECT INFLUENT INTO FLOW STREAM. (SEE DETAIL)
 6. LIFT HOLES ARE PERMITTED.
 7. ALL PIPE HOLES SHALL BE PRECAST OR CORE-DRILLED.
 8. SAND COLLAR OR APPROVED RUBBER BOOT MUST BE USED WITH P.V.C. PIPE.
 9. MANHOLE TO RECEIVE 2 COATS WATER BASED EPOXY (PRO TECH EW-1 OR APPROVED EQUAL) ON THE INTERIOR AND EXTERIOR. TERMINAL MANHOLES, I.E. THE LAST MANHOLE PRIOR TO DISCHARGE TO A LIFT STATION, SHALL RECEIVE 2 COATS OF WATER BASED EPOXY ON THE EXTERIOR (PRO TECH EW-1 OR APPROVED EQUAL). THE INTERIOR SHALL RECEIVE COATING OF 120 MILS OF REZCLAD E-1255 AR OR MIN. 1/2" SEWER COAT OR IET SYSTEMS COATING (10 MILS PRIMARY COAT, 30 MILS INTERMEDIATE COAT, 5-10 MILS FINISH COAT) OR MIN. 1/2" REFRATTA HAC 100.

SHALLOW MANHOLE
Dwg 35
Revised: AUGUST 2016



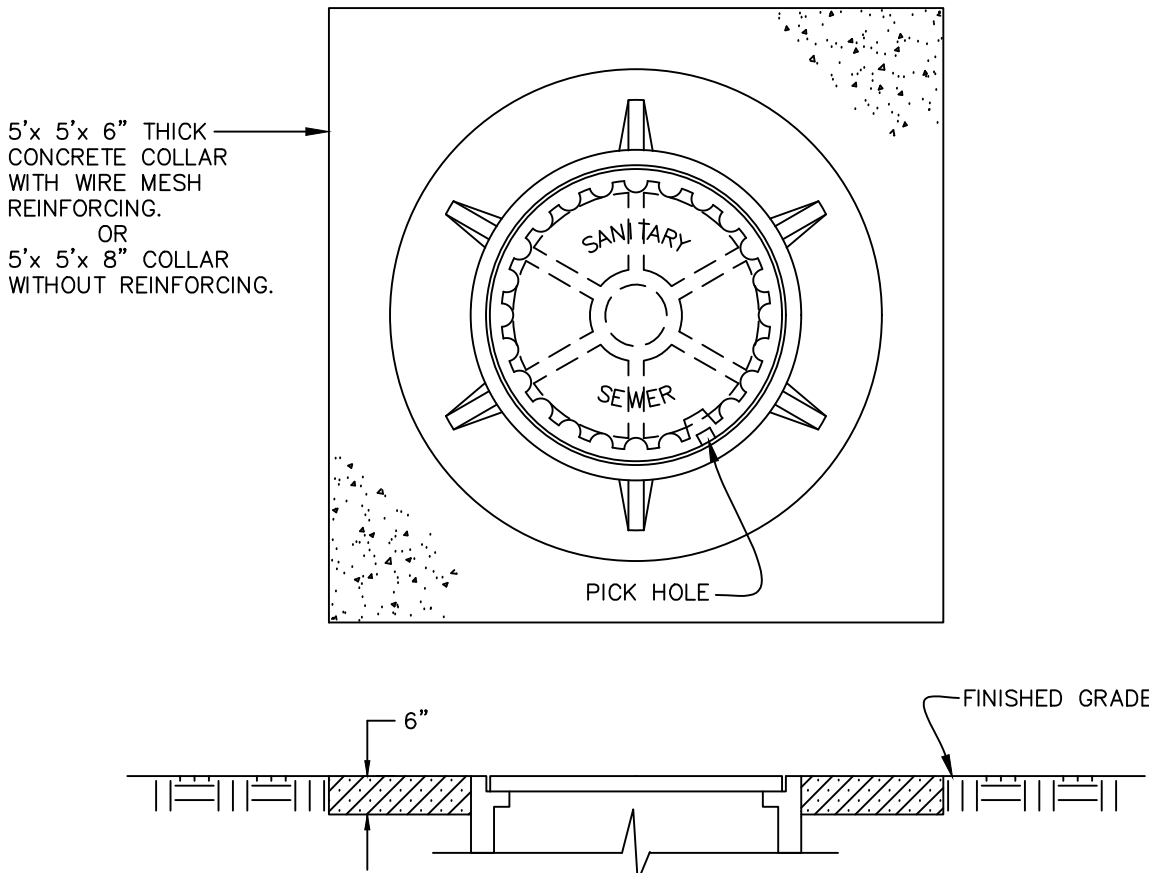
- NOTES:
1. PROVIDE 0.1' DROP THROUGH MANHOLE.
 2. PRECAST CONCRETE MANHOLES SHALL CONFORM TO ASTM C478, SHALL BE TYPE II ACID RESISTANT CEMENT AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS.
 3. USE ONLY WHERE APPROVED AND SPECIFIED ON PLANS.
 4. "RAMNEK" OR EQUAL AT ALL RISER JOINTS (1/2" THICK WITH WIDTH AT LEAST 1/2 THE WALL THICKNESS) WITH GROUT ON INSIDE AND OUTSIDE.
 5. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON-SHRINKING GROUT.
 6. FLOW CHANNELS SHALL BE CONSTRUCTED TO DIRECT INFLUENT INTO FLOW STREAM. (SEE DETAIL)
 7. LIFT HOLES ARE PERMITTED.
 8. ALL PIPE HOLES SHALL BE PRECAST OR CORE-DRILLED.
 9. SAND COLLAR OR APPROVED RUBBER BOOT MUST BE USED WITH P.V.C. PIPE.
 9. MANHOLE TO RECEIVE 2 COATS WATER BASED EPOXY (PRO TECH EW-1 OR APPROVED EQUAL) ON THE INTERIOR AND EXTERIOR. TERMINAL MANHOLES, I.E. THE LAST MANHOLE PRIOR TO DISCHARGE TO A LIFT STATION, SHALL RECEIVE 2 COATS OF WATER BASED EPOXY ON THE EXTERIOR (PRO TECH EW-1 OR APPROVED EQUAL). THE INTERIOR SHALL RECEIVE COATING OF 120 MILS OF REZCLAD E-1255 AR OR MIN. 1/2" SEWER COAT OR IET SYSTEMS COATING (10 MILS PRIMARY COAT, 30 MILS INTERMEDIATE COAT, 5-10 MILS FINISH COAT) OR MIN. 1/2" REFRATTA HAC 100.

FLAT TOP PRECAST MANHOLE
Dwg 36
Revised: AUGUST 2016



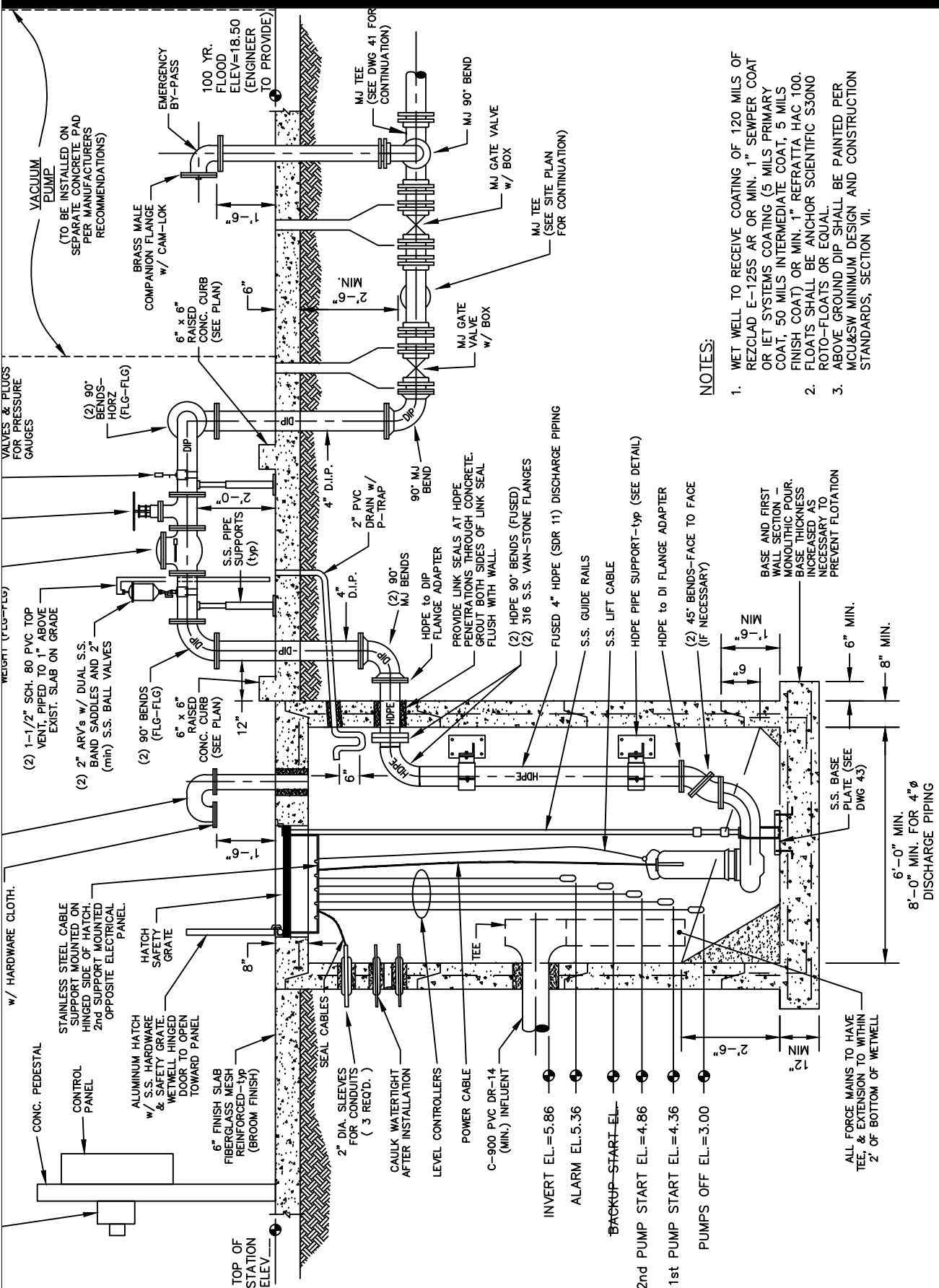
- NOTES:
1. ALL INVERT CHANNELS ARE TO BE CONSTRUCTED FOR SMOOTH FLOW WITHOUT OBSTRUCTION.
 2. PROPERLY SHAPED SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS TO PROVIDE FOR SMOOTH FLOWS.
 3. BRICK AND CONCRETE RUBBLE PERMITTED AS FLOW CHANNEL BUILDUP.
 4. SIDEWALLS OF FLOW CHANNEL SHALL BE AT LEAST HALF OF PIPE HEIGHT AT ALL POINTS.

INVERT FLOW CHANNEL DETAIL
Dwg 37
Revised: AUGUST 2016



- NOTES:
1. COLLAR IS REQUIRED ONLY WHEN MANHOLE IS OUT OF PAVEMENT.
 2. MINIMUM WEIGHTS: COVER - 160 LBS., FRAME - 240 LBS.
 3. RING AND COVER SHALL BE U.S. FOUNDRY 420-C, VULCAN FOUNDRY V-101 OR APPROVED EQUAL.
 4. MANHOLE COVER SHALL HAVE THE WORDS "SANITARY SEWER" CAST IN METAL.
 5. MANHOLE COVER SHALL MEET H-20 TRAFFIC LOADING.

SANITARY SEWER MANHOLE
RING AND COVER
Dwg 38
Revised: AUGUST 2016



TYPE "A" LIFT STATION 1
TYPICAL SECTION
Dwg 43
Revised: AUGUST 2016

PUMP DATA: MANUFACTURER, FLYGT
NP3153.181 MOD. No., 462 IMP. No., 21-18-4AA MOTOR,
20 HP, 1760 RPM, 462 VOLTS, 3 PHASE, 60 HERTZ

OPERATING CONDITIONS: 90/250 GPM AT 127/117 TDH.
AS-BUILT: PUMP NO. 1 GPM AT TDH.
PUMP NO. 2 GPM AT TDH.

WET WELL: SIZED FOR MINIMUM PUMP CYCLE TIME OF 10 MINUTES AND A MAXIMUM OF 6 PUMP STARTS PER HOUR. WORKING DEPTH 1.36 FT. WORKING VOLUME 287.67 GALS.

ELECTRICAL: FEEDERS AND CONDUIT 1 MAIN SWITCH 4 POLES 26-157 AMPS

- NOTE:
- THE FOLLOWING VOLTAGE STANDARDS FOR LIFT STATION PUMPS ARE REQUIRED PER FPL AND MCU:
- WHERE 3-PHASE POWER IS AVAILABLE
- LESS THAN OR EQUAL TO 10 HP: 120/230 3-PHASE, 4 WIRE, OPEN DELTA
 - MORE THAN 10 HP: 277/480 3-PHASE, 4 WIRE, OPEN DELTA (WHEN POSSIBLE)
 - COORDINATE WITH FPL FOR SUPPLY

TYPE "A" LIFT STATION 1
REQUIRED INFORMATION
Dwg 48
Revised: AUGUST 2016

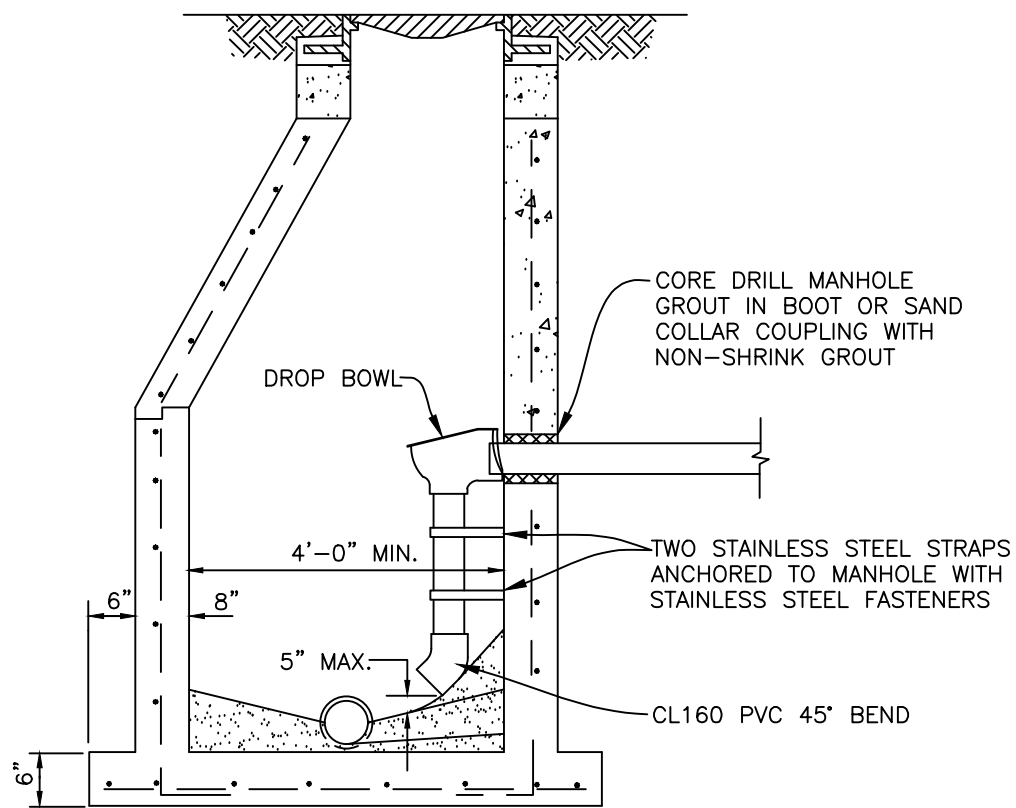
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MARTIN COUNTY, FLORIDA
WATER AND SEWER DETAILS

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MANAGER	KB	CHECKED	ACS
JOB NO.	16042.02	CHECKED	19

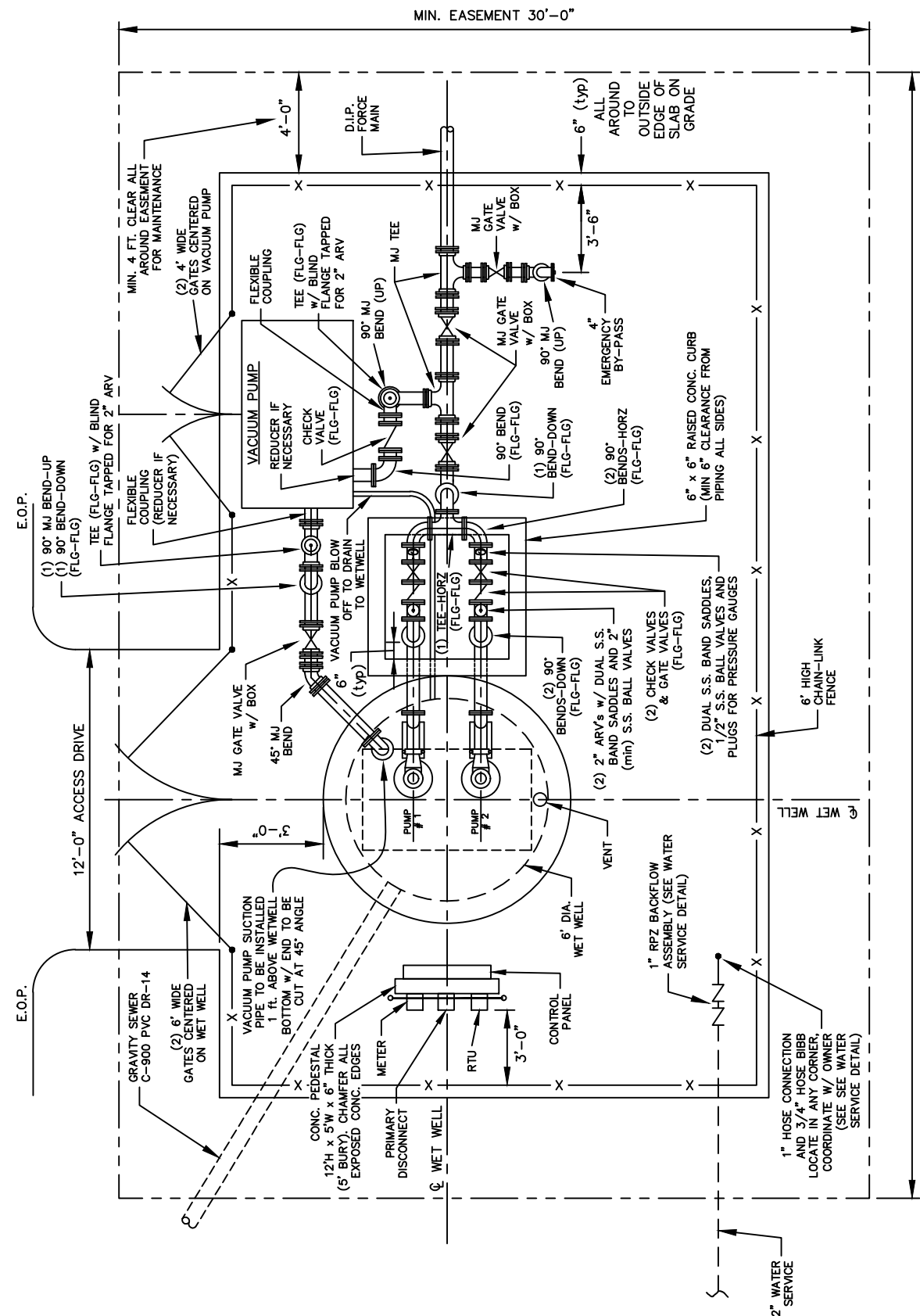


NOTES:

1. ALL DETAILS AND SPECIFICATIONS FOR STANDARD MANHOLES ARE APPLICABLE EXCEPT FOR REFERENCES TO DROP ASSEMBLY AND COATINGS.
2. THE PRECAST BASE SHALL EXTEND FULLY UNDER THE DROP ASSEMBLY.
3. MASONRY CONSTRUCTION ABOVE THE EXTENDED PRECAST BASE IS PERMISSIBLE IF FILLED WITH CONCRETE.
4. BRICK AND CONCRETE RUBBLE ARE PERMITTED AS FILLER IN DROP ENCASMENT.
5. DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT INVERT IS LOCATED 2.0 FEET OR MORE ABOVE THE MAIN INVERT CHANNEL. DROP CONNECTIONS SHOULD NOT BE DESIGNED FOR LESS THAN A 24-INCH DROP.
6. SOLVENT TYPE JOINT P.V.C. FITTINGS MAY BE UTILIZED IN THE DROP ASSEMBLY ONLY.
7. THE EXTERIOR SHALL RECEIVE 2 COATS OF WATER BASED EPOXY (PRO TECH EW-1 OR APPROVED EQUAL). THE INTERIOR SHALL RECEIVE COATING OF 120 MILS OF REZCLAD E-125S AR OR MIN. 1/2" SEWPER COAT OR IET SYSTEMS COATING (10 MILS PRIMARY COAT, 30 MILS INTERMEDIATE COAT, 5-10 MILS FINISH COAT) OR MIN. 1/2" REFRATTA HAC 100.

DROP MANHOLE AND SERVICE DROP Dwg 39

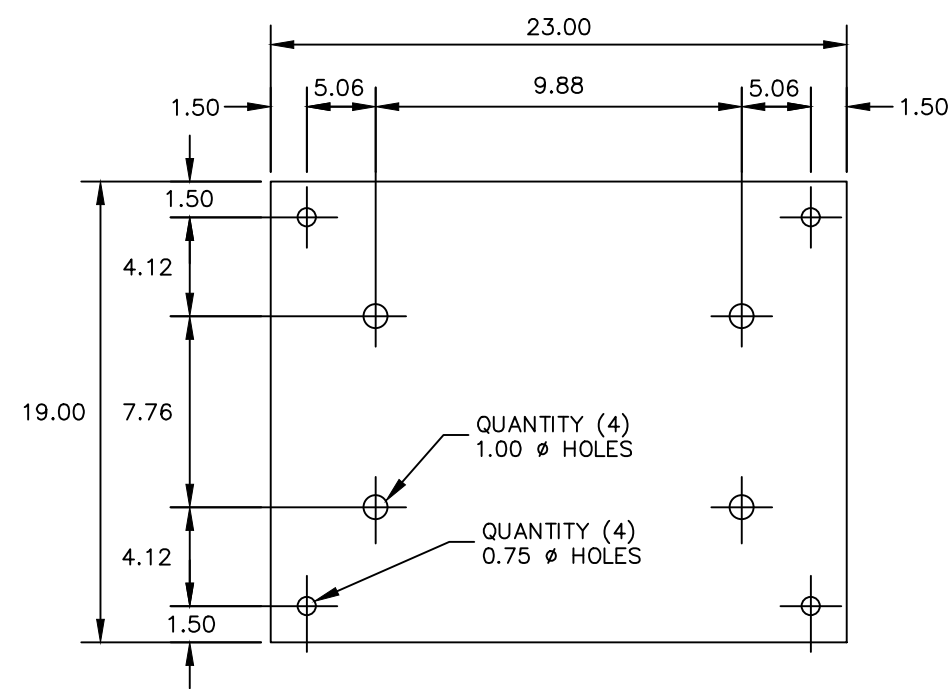
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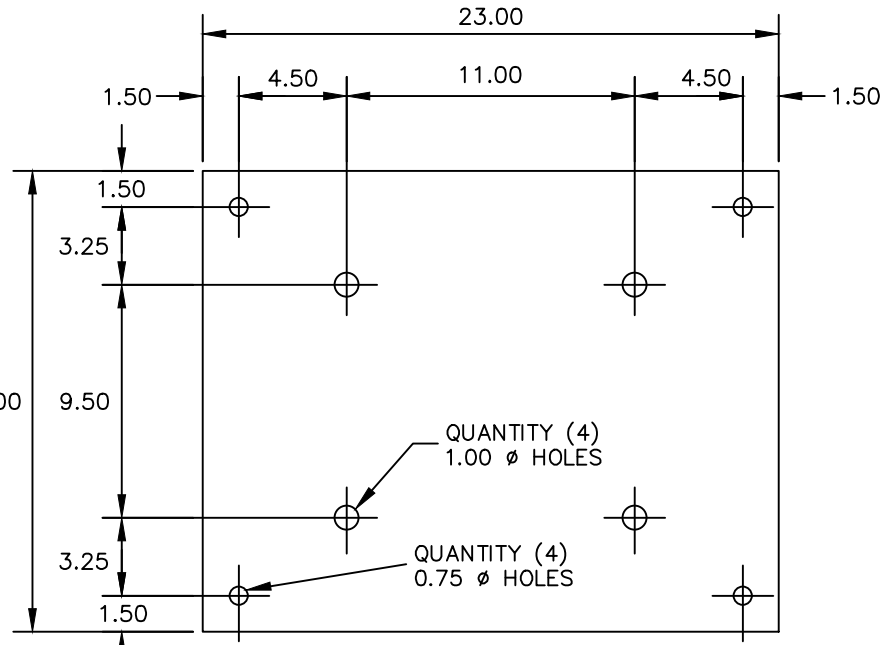
TYPE "A" LIFT STATION TYPICAL SITE PLAN LAYOUT Dwg 42

Revised: AUGUST 2016

- NOTES:
1. ACCESS ROAD SHALL CONSIST OF:
 - a. 10' MIN. WIDE ASPHALT DRIVE
 - b. 10' MIN. WIDE ASPHALT DRIVE
 - c. 10' MIN. WIDE ASPHALT DRIVE
 - d. 10' MIN. WIDE ASPHALT DRIVE
 - e. 10' MIN. WIDE ASPHALT DRIVE
 - f. 10' MIN. WIDE ASPHALT DRIVE
 - g. 10' MIN. WIDE ASPHALT DRIVE
 - h. 10' MIN. WIDE ASPHALT DRIVE
 - i. 10' MIN. WIDE ASPHALT DRIVE
 - j. 10' MIN. WIDE ASPHALT DRIVE
 - k. 10' MIN. WIDE ASPHALT DRIVE
 - l. 10' MIN. WIDE ASPHALT DRIVE
 - m. 10' MIN. WIDE ASPHALT DRIVE
 - n. 10' MIN. WIDE ASPHALT DRIVE
 - o. 10' MIN. WIDE ASPHALT DRIVE
 - p. 10' MIN. WIDE ASPHALT DRIVE
 - q. 10' MIN. WIDE ASPHALT DRIVE
 - r. 10' MIN. WIDE ASPHALT DRIVE
 - s. 10' MIN. WIDE ASPHALT DRIVE
 - t. 10' MIN. WIDE ASPHALT DRIVE
 - u. 10' MIN. WIDE ASPHALT DRIVE
 - v. 10' MIN. WIDE ASPHALT DRIVE
 - w. 10' MIN. WIDE ASPHALT DRIVE
 - x. 10' MIN. WIDE ASPHALT DRIVE
 - y. 10' MIN. WIDE ASPHALT DRIVE
 - z. 10' MIN. WIDE ASPHALT DRIVE
 2. PUMP STATION DESIGN SHALL BE CONFIRMED WITH THE ENGINEER OF RECORD.
 3. ENGINEER OF RECORD RESPONSIBLE FOR FINAL PIPING AND LIFT STATION LAYOUT.



4"x4" ELBOWS



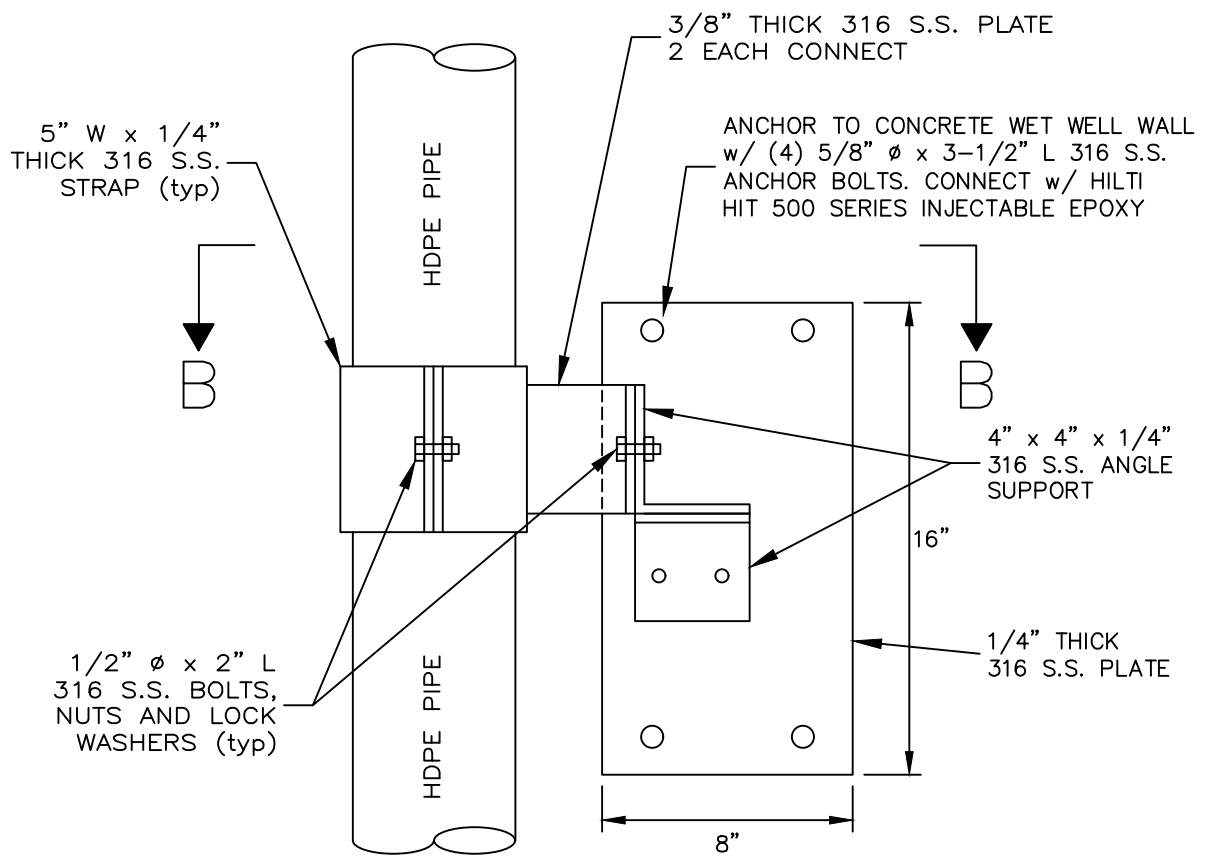
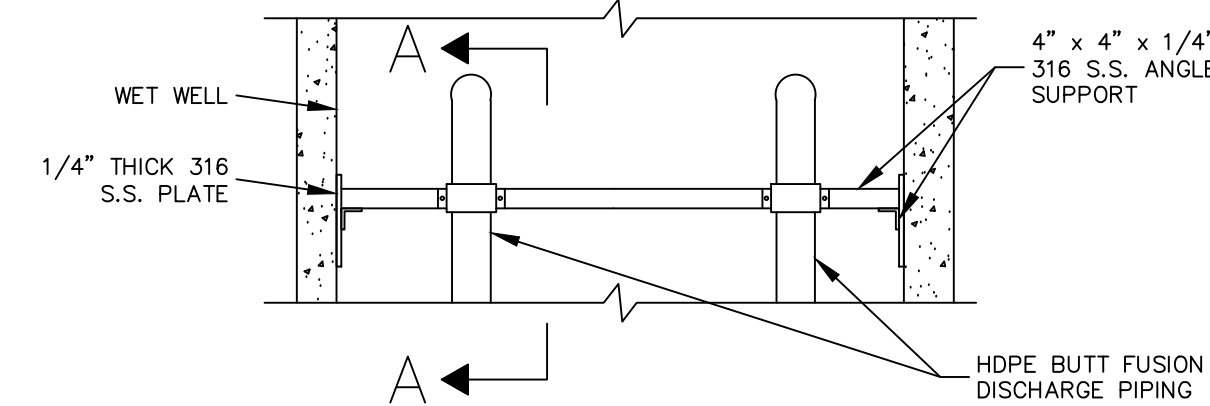
6"x6", 6"x8" & 8"x8" ELBOWS

NOTES:

1. EACH BASE ELBOW SHALL BE SECURED TO THE BOTTOM OF THE WET WELL WITH FOUR (4) 3/4" STEEL WEDGE ANCHOR BOLTS AND STAINLESS STEEL PLATE. THE PLATE SHALL BE SECURED WITH FOUR (4) 1/2" STAINLESS STEEL ANCHOR BOLTS. THE BOLTS SHALL BE EMBEDDED A MINIMUM OF 4" INTO THE CONCRETE AND TORQUED TO 150 FT. LBS.
2. THE STAINLESS STEEL PLATES AND BOLTS SHALL BE FURNISHED BY THE PUMP MANUFACTURER.

TYPE "A" LIFT STATION BASE PLATES Dwg 44

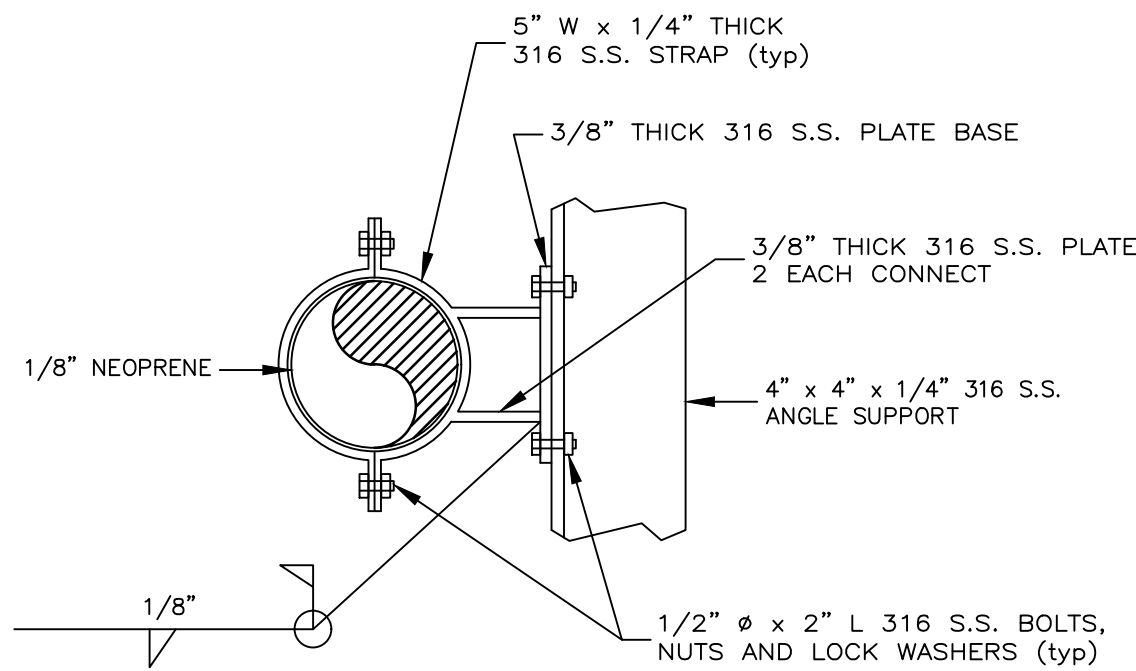
Revised: AUGUST 2016



SECTION A-A

TYPE "A" LIFT STATION HDPE ANGLE PIPE SUPPORT Dwg 45

Revised: AUGUST 2016



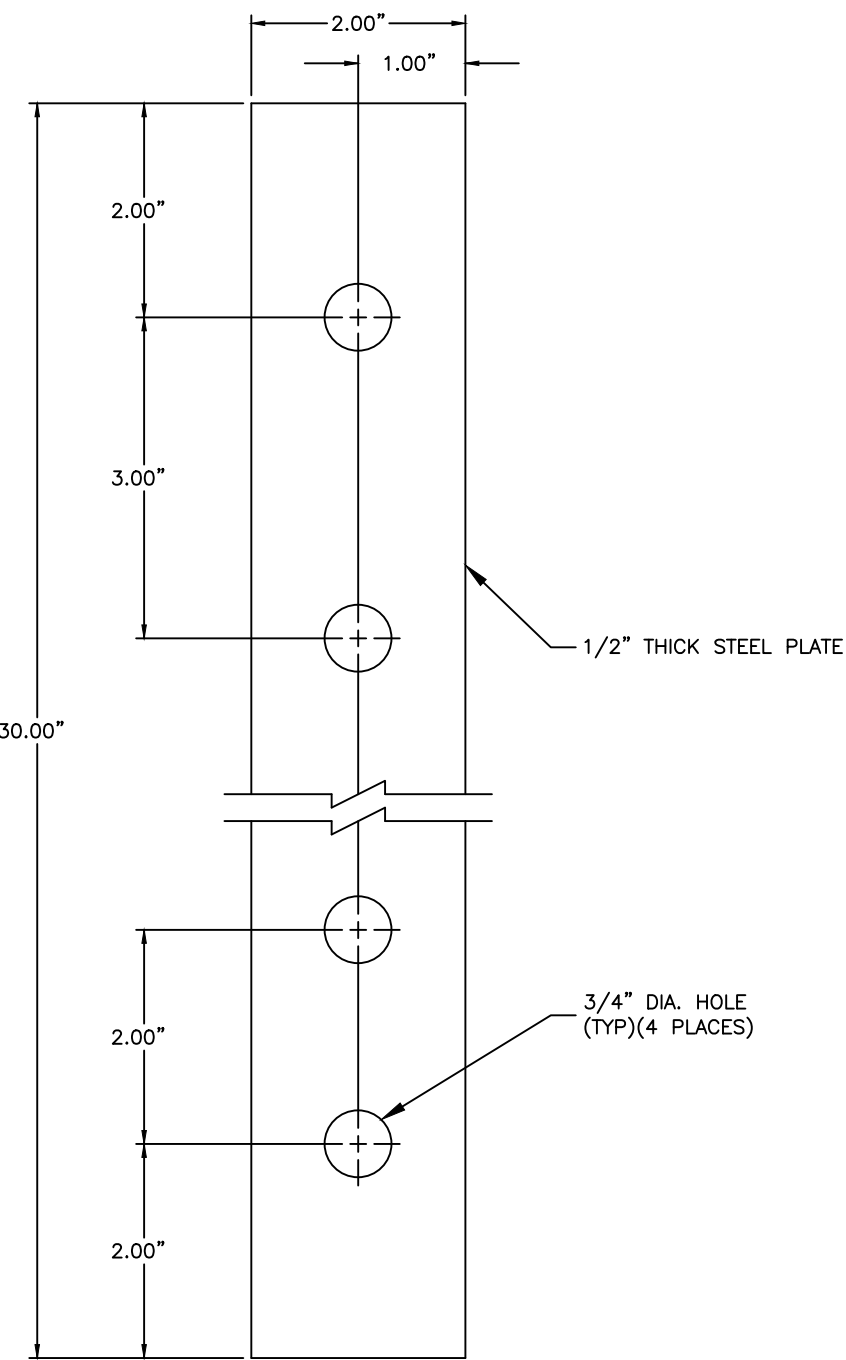
SECTION B-B

NOTE:

1. CONSTRUCT ALL WELDS IN ACCORDANCE WITH AWS D-1.6 STRUCTURAL WELDING CODE.
2. ALL FASTENERS, SUPPORTS AND ANCHOR BOLTS SHALL BE 316 S.S.
3. SUPPORTS SHALL HAVE A MAXIMUM SPACING OF 5'-0"
4. AT A MINIMUM, ONE SUPPORT SHALL BE LOCATED 4' ABOVE THE BASE ELBOW AND ONE SUPPORT SHALL BE LOCATED 4' BELOW THE BOTTOM OF TOP SLAB.

TYPE "A" LIFT STATION HDPE ANGLE PIPE SUPPORT Dwg 45A

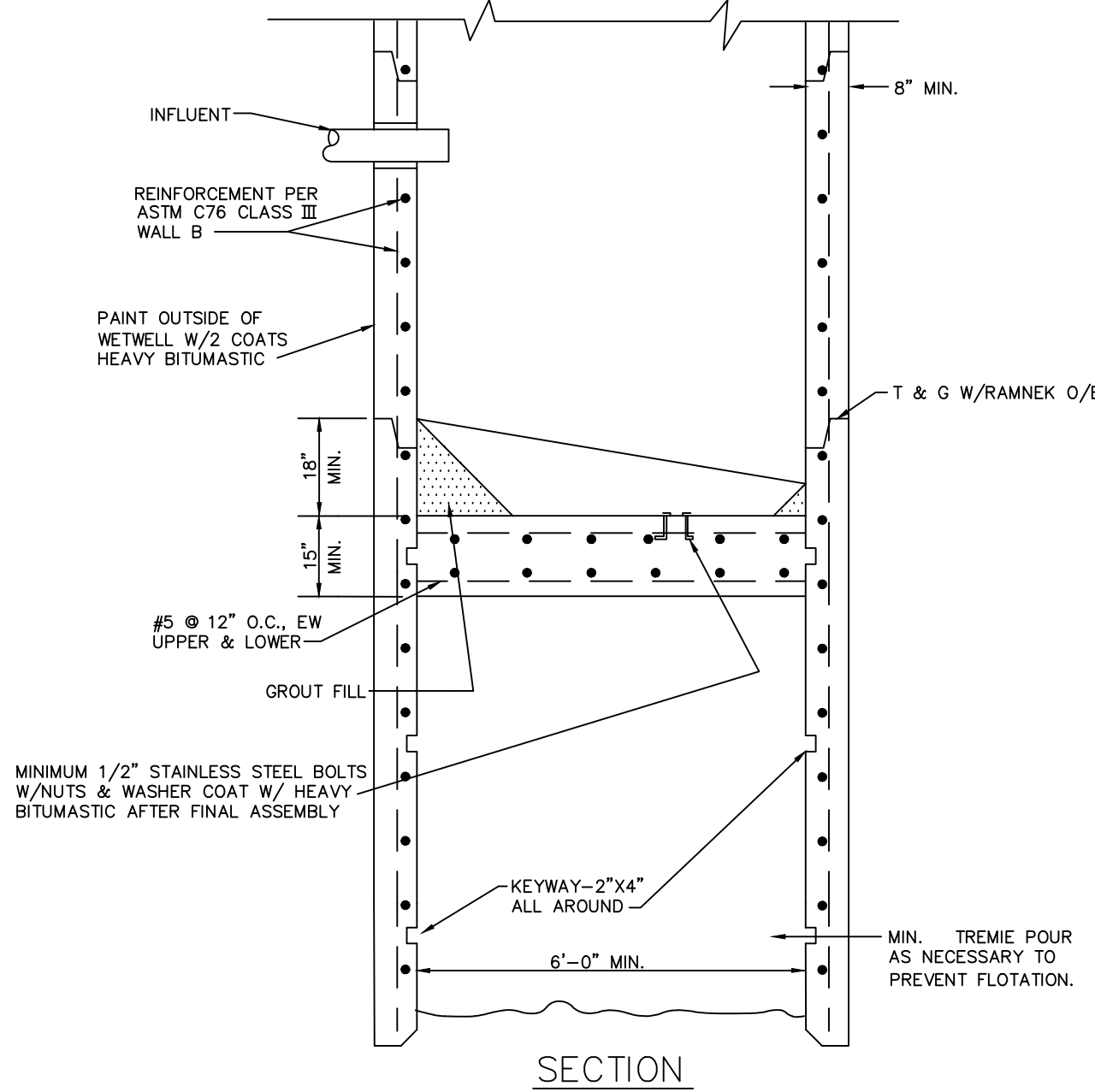
Revised: AUGUST 2016



NOTE: 6 RETAINER STRAPS PER JOINT.

TYPE "A" LIFT STATION WET WELL SECTION RETAINER STRAP Dwg 46

Revised: AUGUST 2016

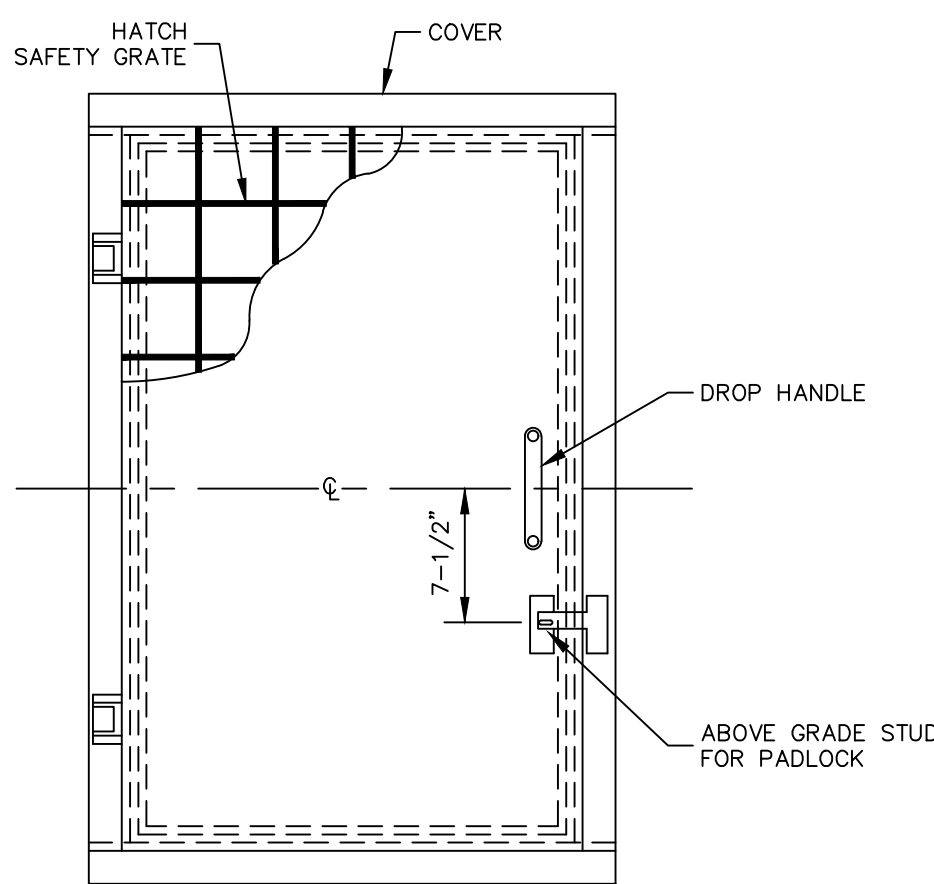


NOTES:

1. CONCRETE WETWELL SECTIONS SHALL BE CONNECTED BY STEEL STRAPS, SIX PER JOINT. CONTRACTOR SHALL SUBMIT METHOD TO UTILITIES FOR APPROVAL ALONG WITH SHOP DRAWING.
2. SEE TYPICAL LIFT STATION DETAILS FOR ADDITIONAL DESIGN AND CONSTRUCTION STANDARDS.
3. TREMIE SEAL MINIMUM 5'-0" THICK.
4. DESIGN CALCULATIONS TO BE SUBMITTED FOR APPROVAL.
5. WET WELL TO RECEIVE COATING OF MIN. 120 MILS OF REZCLAD E-125S AR OR MIN. 1" SEWPER COAT OR IET SYSTEMS COATING (MIN. 5 MILS PRIMARY COAT, MIN. 50 MILS INTERMEDIATE COAT, MIN. 5 MILS FINISH COAT) OR MIN. 1" REFRATTA HAC 100.

TYPE "A" LIFT STATION TREMIE POUR DETAIL Dwg 47

Revised: AUGUST 2016



NOTES:

1. COVER TO BE ALUMINUM DIAMOND PLATE, HINGED, TRAFFIC BEARING WITH POSITIVE LOCKING ARM AND PADLOCK STUD.
2. MINIMUM COVER DIMENSIONS - - - 36"x 60"
3. COVER SHALL BE CAST IN PLACE (BILCO TYPICAL).
4. SPLIT COVER IS ACCEPTABLE FOR LARGER SIZES.
5. RECESSED LOCKING HASP IS REQUIRED IN WALKWAYS AND TRAFFIC AREAS.
6. LD TO BE DESIGNED TO HANDLE A MINIMUM OF 300 LBS. PER S.F. LOADING.
7. HANDLE TO BE SECURED BY STAINLESS STEEL NUTS.
8. HATCH SAFETY GRATE SHALL BE MANUFACTURED BY U.S.F. FABRICATION, INC.

TYPE "A" LIFT STATION STANDARD ALUMINUM COVER Dwg 49

Revised: AUGUST 2016

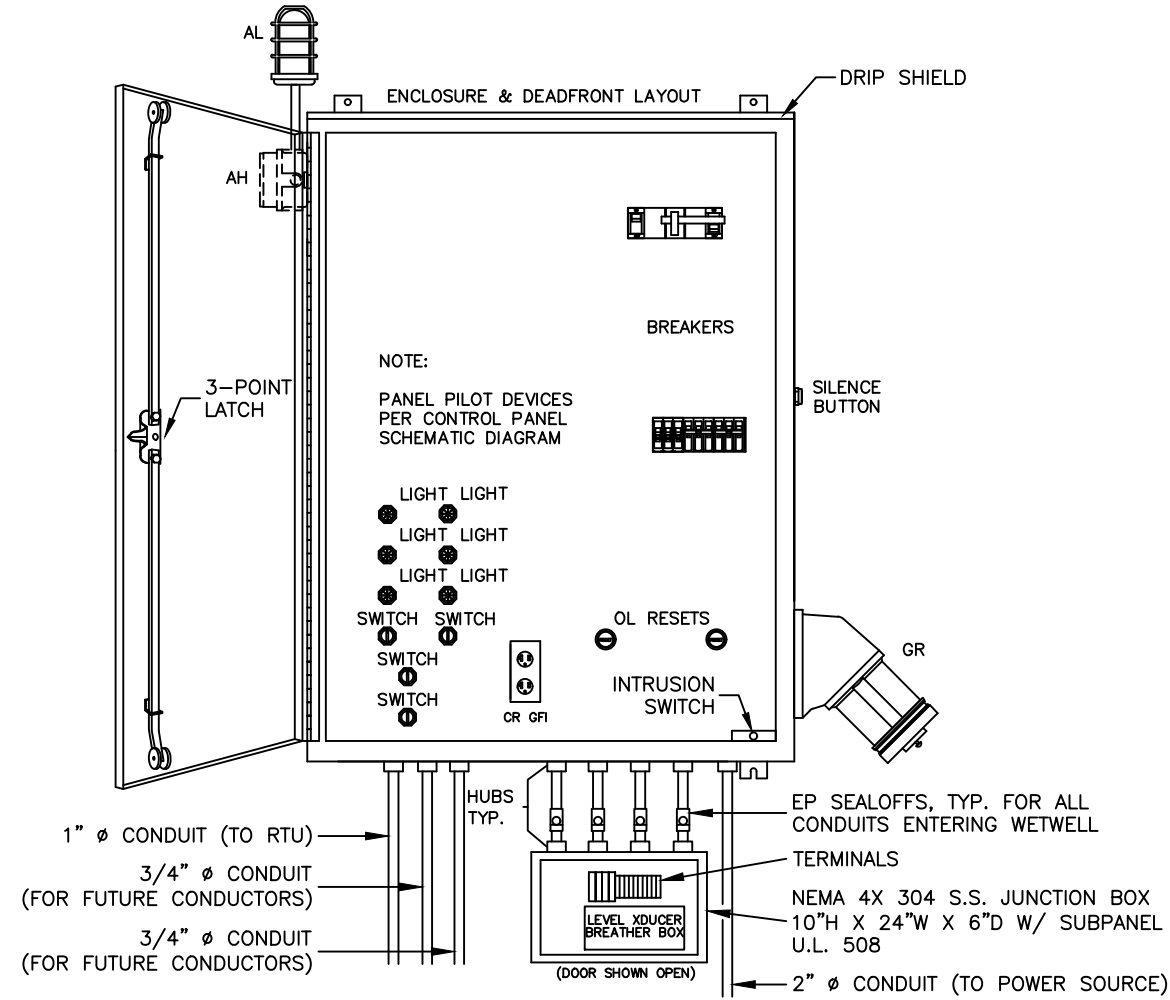
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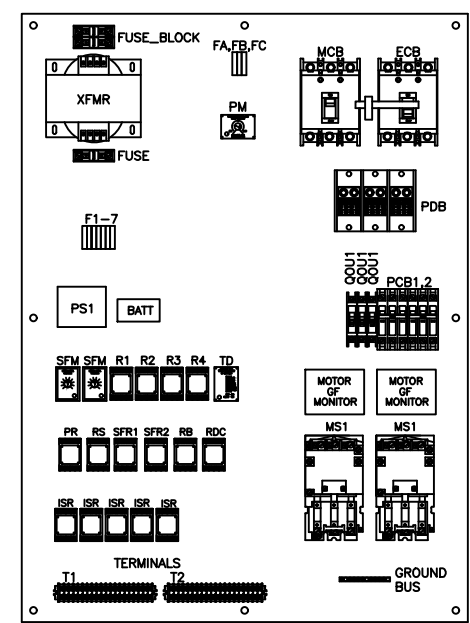
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ENCLOSURE & DEADFRONT LAYOUT



BACKPLATE LAYOUT

TYPE "A" LIFT STATION
CONTROL PANEL DEADFRONT & BACKPLATE LAYOUT
Dwg 52

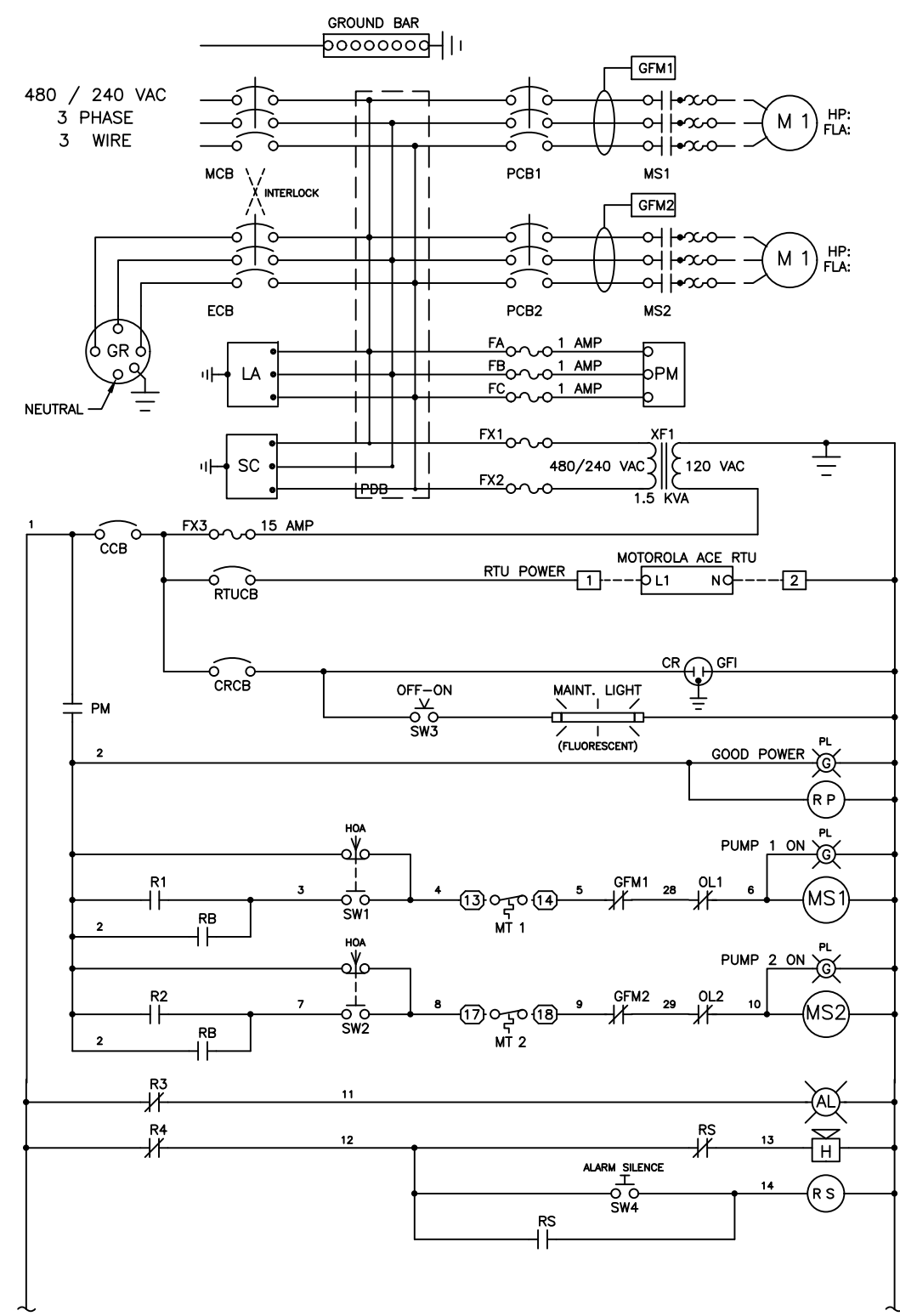
Revised: AUGUST 2016

LIFT STATION CONTROL PANEL NOTES

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES. THE PANEL MAKER SHALL BE A U.L. LISTED SHOP.
- THE CONTROL PANEL SHALL BE FURNISHED COMPLETELY ASSEMBLED AND WIRED WITH THE FOLLOWING MINIMUM FEATURES:
 - ENCLOSURE SHALL BE STAINLESS STEEL, MODIFIED NEMA 3R, 14 GAUGE, TYPE 304 SS, WITH WELDED SEAMS AND DRIP SHIELD. ALL HARDWARE SHALL BE STAINLESS STEEL. PROVIDE BLANK OUTSIDE DOOR WITH PIANO HINGE, NEOPRENE GASKET, 3 POINT CAPTIVE LATCH WITH NYLON ROLLERS OPERATED FROM A SINGLE PADLOCKABLE HANDLE, WITH DRAWING POCKET, PROVIDE ALUMINUM DEAD FRONT HINGED INNER DOOR FOR MOUNTING CONTROL COMPONENTS; EXTEND CIRCUIT BREAKER HANDLES, RESET BUTTONS, ETC. THROUGH THE DEAD FRONT INNER DOOR. PROVIDE SUB PLATE OF ENAMELED STEEL OR ALUMINUM.
 - MAIN BREAKER, MECHANICALLY INTERLOCKED WITH EMERGENCY BREAKER.
 - GROUND BUS.
 - SEPARATE CIRCUIT BREAKERS FOR THE CONTROL CIRCUITS ETC.
 - 15A DUPLEX RECEPTACLE, GFI, WITH SEPARATE BREAKER.
 - SURGE ARRESTER ON THE INCOMING POWER FEEDER
 - POWER MONITOR WHICH DISCONNECT THE CONTROL POWER FOR ABNORMAL POWER CONDITIONS INCLUDING VOLTAGE DEGRADATION OR PHASE LOSS AND WILL AUTOMATICALLY, WHEN POWER RETURNS, RETURN TO NORMAL. EQUAL TO DIVERSIFIED SLA SERIES.
 - PROVIDE SQD NEMA SIZED STARTER CONTROLLER WITH OVERCURRENT PROTECTION, SHORT CIRCUIT PROTECTION AND DISCONNECT FOR EACH MOTOR.
 - HOA, MAINT.LIGHT SW. AND PILOT LIGHTS
 - ALL SELECTOR SWITCHES, PUSH BUTTONS, AND PILOT LIGHTS SHALL BE THE HEAVY DUTY, OIL TIGHT, EQUAL TO SQ.D. TYPE K. ALL PILOT LIGHTS SHALL NOT BE TRANSFORMER TYPE AND NOT BE PRESS TO TEST.
 - 120V/12V POWER SUPPLY FOR THE FLOAT TYPE LEVEL SWITCH RELAYS AND ANALOG SIGNAL.
 - SURGE CAPACITOR ON THE LOAD SIDE OF THE MAIN BREAKER EQUAL TO GE 9118BAB301.
 - NUMBERED WIRES AND CORRESPONDING TERMINALS. COLOR CODED WIRING TO DISTINGUISH PANEL WIRING OF DIFFERING VOLTAGES AND INCOMING FOREIGN CIRCUITS.
 - CONTROL PANEL AND RTU SHALL BE PROVIDED AND CONFIGURED TO SEND & RECEIVE SIGNALS TO THE WWTP COMPUTER SYSTEM USING THE OWNER'S AND I/O SYSTEM. ALL CONFIGURATION AT THE CONTROL COMPUTER SHALL BE PROVIDED SEPARATELY BY THE OWNER. CONFIGURATION, STARTUP, TESTING AND CHECK-OUT SHALL BE PROVIDED BY THE RTU MANUFACTURER. CONTRACTOR SHALL PROVIDE AND INSTALL RADIO/MODEM AND I/O SYSTEM IN AGREEMENT WITH THE OWNER'S STANDARD
- ALL CONDUITS ENTERING THE WETWELL SHALL PVC COATED RGS, SIZED PER PLANS, PERMACOAT, ROBROY OR AN APPROVED EQUAL.
- ALL CONTROL CIRCUITS ENTERING WETWELL SHALL BE INSTALLED THROUGH INTRINSICALLY SAFE RELAYS, PHOENIX CONTACT OR TURCK, OR AN APPROVED EQUAL.
- THE PUMP MOTOR CIRCUITS SHALL BE INSTALLED WITH GROUND FAULT MONITORS, AS MANUFACTURED BY BENDER OR AN APPROVED EQUAL.
- ARC FLASH LABEL TO BE INSTALLED ON THE FRONT OF THE PANEL.

TYPE "A" LIFT STATION
CONTROL PANEL NOTES
Dwg 52A

Revised: AUGUST 2016

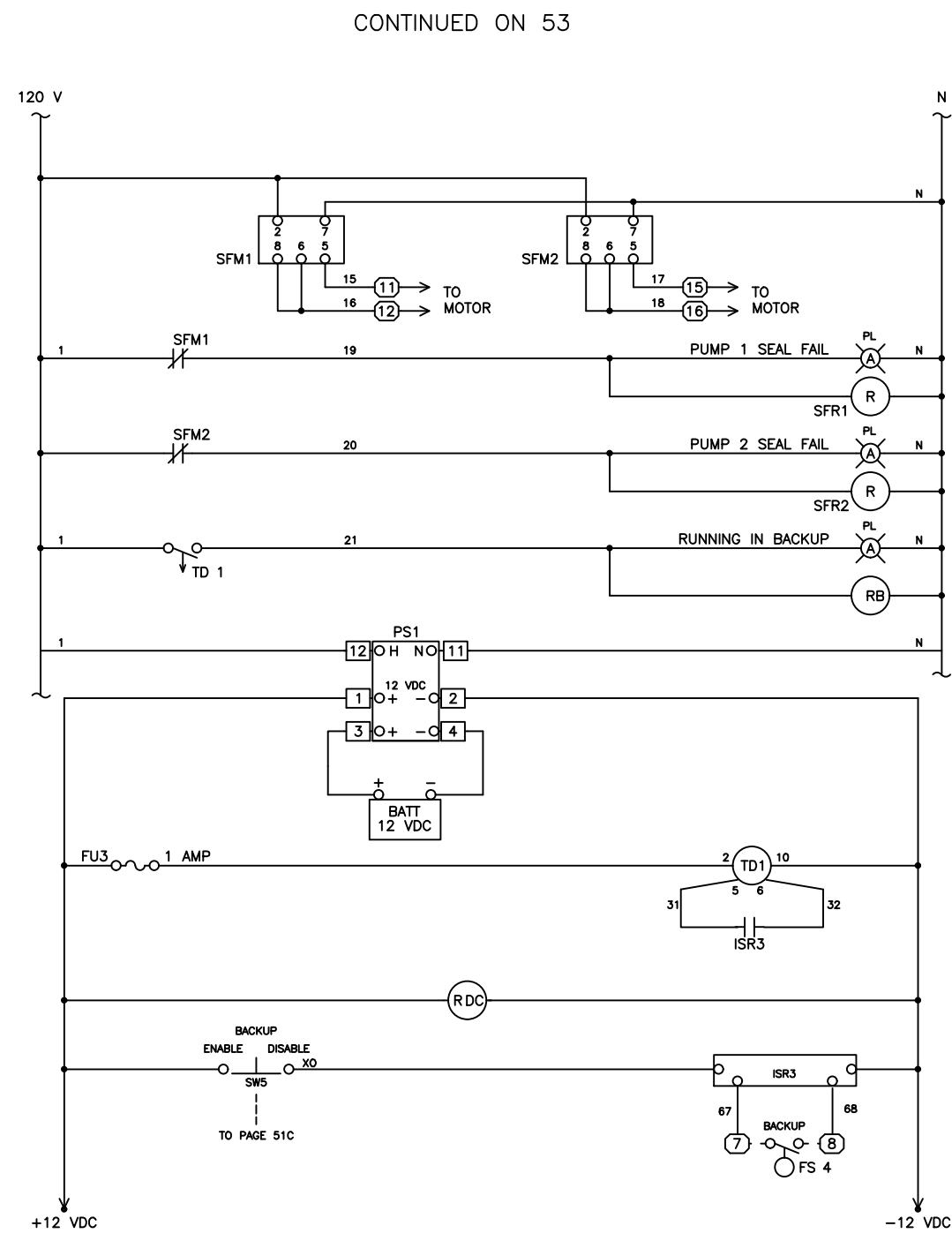


CONTINUED ON 53A

NOTE:
COORDINATE PANEL WIRING, GR RECEPTACLE WIRING, AND ENGINE-GENERATOR WIRING SUCH THAT THE CENTER WIRE ON THE BREAKER AND AT ALL POINTS IS THE HIGH LINE.

TYPE "A" LIFT STATION
CONTROL PANEL WIRING DIAGRAM
480 / 240 V, 3 PHASE, 3 WIRE
Dwg 53

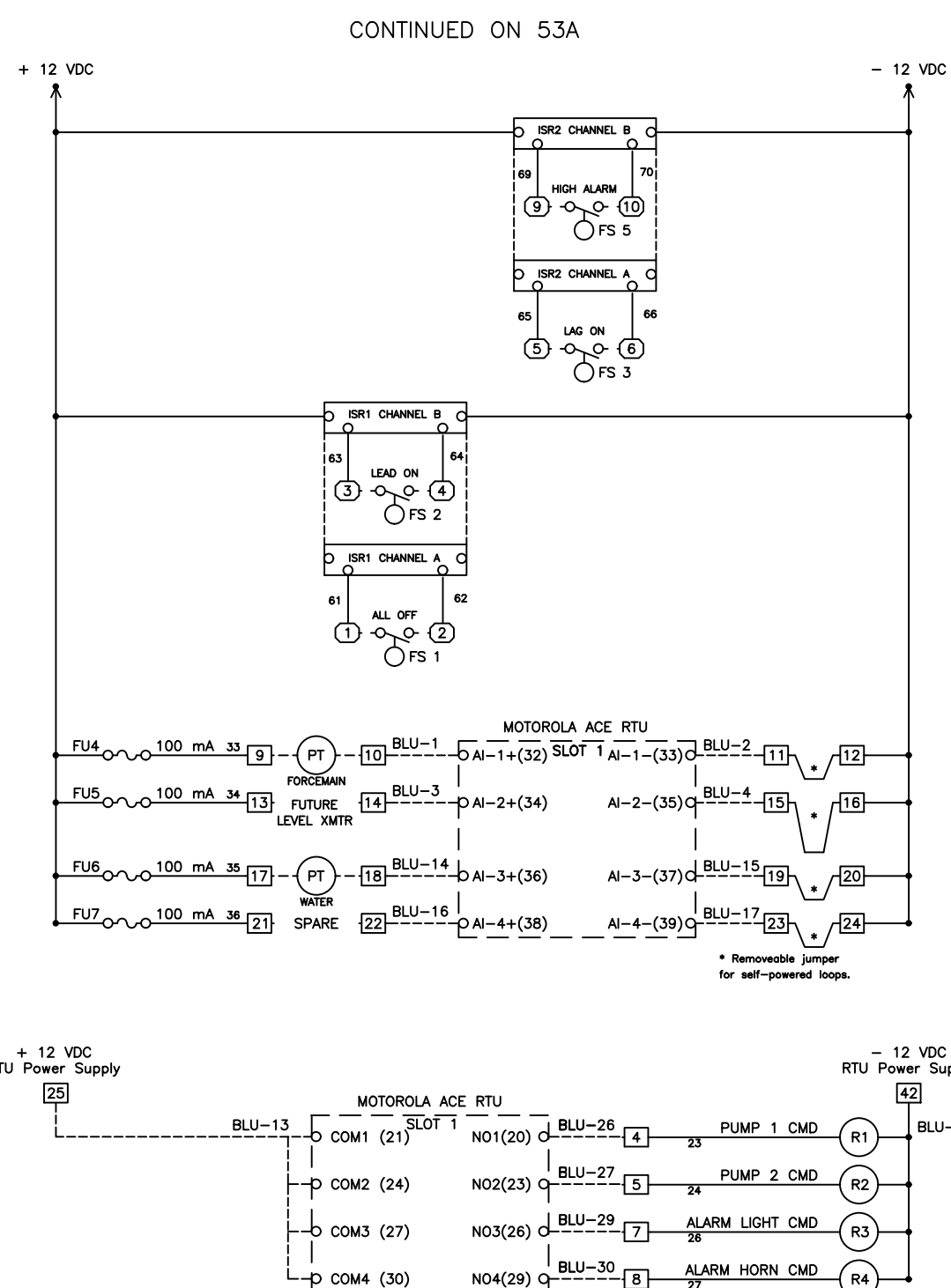
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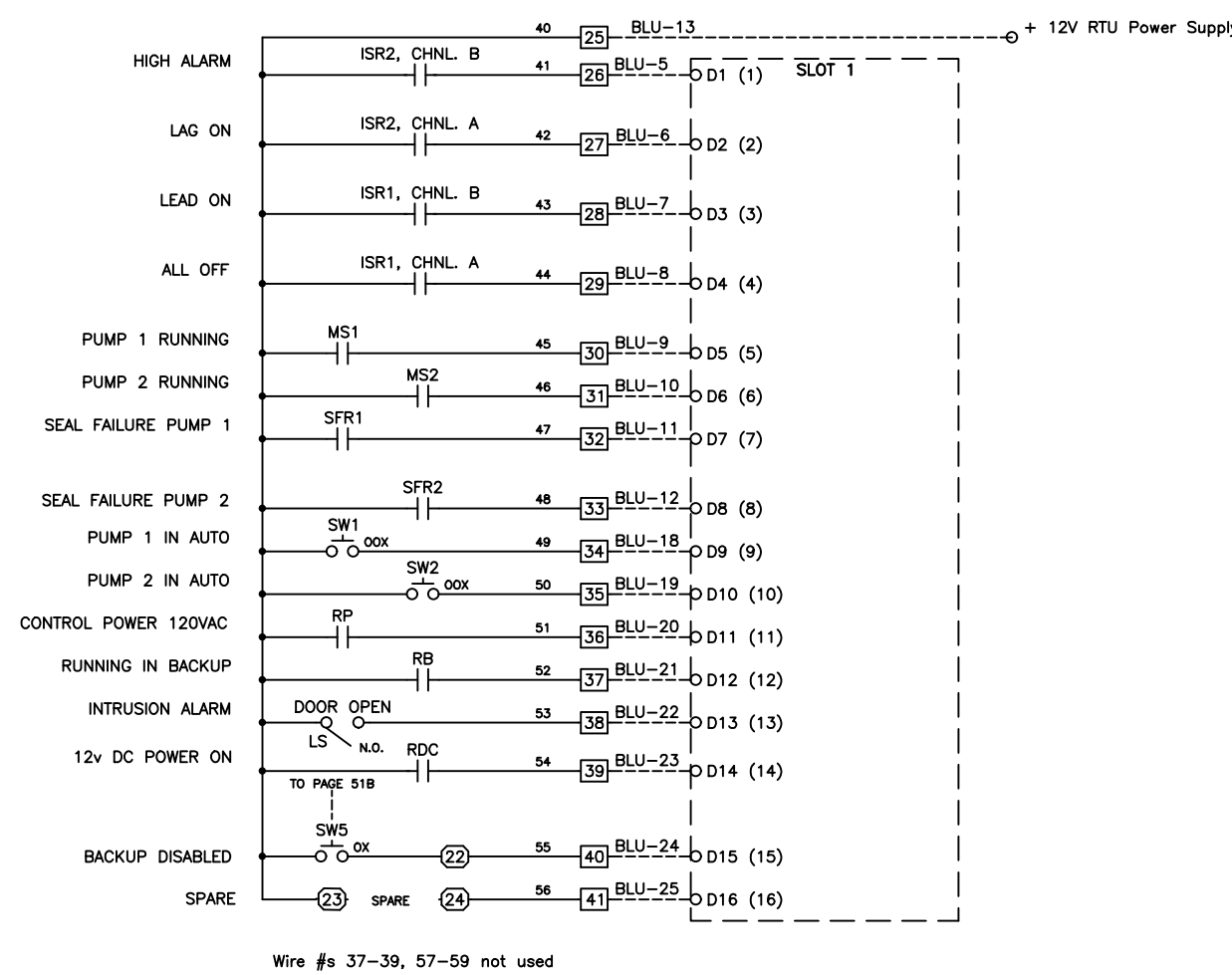
TYPE "A" LIFT STATION
CONTROL PANEL WIRING DIAGRAM
480 / 240 V, 3 PHASE, 3 WIRE
Dwg 53A

Revised: AUGUST 2016



TYPE "A" LIFT STATION
CONTROL PANEL WIRING DIAGRAM
480 / 240 V, 3 PHASE, 3 WIRE
Dwg 53B

Revised: AUGUST 2016



WIRE # 37-39, 57-59 NOT USED

TYPE "A" LIFT STATION
CONTROL PANEL WIRING DIAGRAM
480 / 240 V, 3 PHASE, 3 WIRE
Dwg 53C

Revised: AUGUST 2016

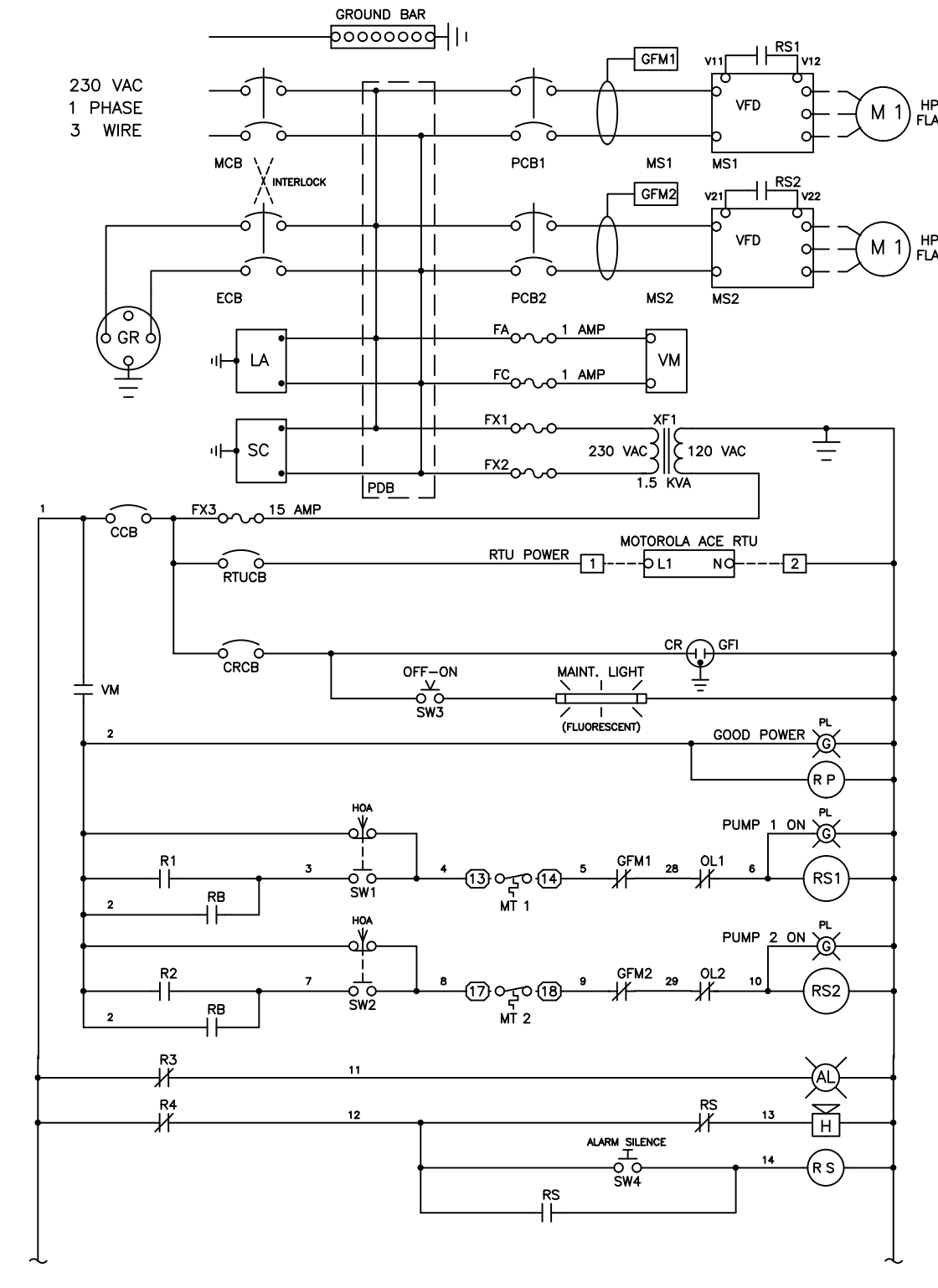
CONTROL PANEL PARTS LIST

Abbrev.	Description	Manufacturer	Part Number
ENC	Enclosure	Hoffman or equal	Custom, Nema 3R, 304SS w/ minishield and 3 Pt. latch
AL	Alarm Light (Red Bulb)	RAB	RAB-VP100DG
BATT	Battery, 12V DC	Power Sonic	PS-1270
CCB	Control Circuit Breaker	Square D	QOU110
CR	Convenience Recept, GFI Type	Pans and Seymour	1595-1 and Weatherproof Box
CRCB	Convenience Recept, CB	QOU115	Size as required
ECB	Emergency Circuit Breaker	Square D	Size as required
FA-FC	Fuse, Phase Monitor Power	Ferraz	ATOR-1
FX1, FX2	Fuse, Transformer Primary	Ferraz	ATOR-X (460 V) or ATQR-15 (230 V)
FX3	Fuse, Transformer Secondary	Ferraz	FNMI5
FU1-FU3	Fuse	Buss	GDB-1A
FU4-FU7	Fuse	Buss	GDB-100Ma
GFM1,2	Motor Ground Fault Monitor	Bender	RCM460/465 Series
GR	Generator Receptacle	JRS1044FR or JRS2044FR	(as required)
H	Horn	Federal	350-WB-120
ISR1-3	Intrinsically Safe Relays	Ingram Products	ISR2-12V-100K
LA	Lightning Arrestor	Dieck	DTK-240-3CM or DTK-480-3CM (as required)
MCB	Main Circuit Breaker	Square D	Size as required
MS1, MS2	Main Starters	Square D	Class 8556 NEMA series, Size as required
PCB1,2	Pump Circuit Breaker	Square D	Size as required
PDB	Power Distribution Block	Marathon	1333555
PL	Pilot Light, color as noted	Square D	Class 9001 Type SK
PS1	Power Supply, 12 DC	Astrodyne	AD55-A
PM	Phase Monitor	Diversified	SLA-230-ASA or SUA-460-ASA (as required)
R1-R4	Control Relay	Omron	MY2N-DC12V
RB, RP, RS	Control Relay	Omron	MK2PS-AC120
RDC	Control Relay	Omron	MY2N-DC12V
RTUCB	RTU Circuit Breaker	Square D	QOU110
SSAC	Seal Fail Monitor	SSAC	LC54BA
SFR1, SFR2	Control Relay, Seal Fail Relay	Square D	Class 8501 Type KP
SW1-3, SW5	Switch	Square D	Class 9001 Type SK
SW4	Alarm Silence Pushbutton	Wago	280 Series
TB	Terminal Blocks	TRUDU1203	
TD1	Time Delay Relay	Square D	Class 9070 T1500-D1
XF1	Transformer	Square D	6671-SDSA3650
SC	Surge Capacitor	Square D	6671-SDSA3650

NO EXCEPTIONS will be allowed as to manufacturer of Generator Receptacle, Breakers or Motor Starters. Upon submittal and approval, substitution of other parts on an "As Equal" basis may be allowed if they are directly interchangeable with parts specified. APPROVAL OF A SUBMITTED ITEM AS AN "EQUAL" SHALL BE AT THE SOLE DISCRETION OF THE DEPARTMENT.

TYPE "A" LIFT STATION
CONTROL PANEL BILL OF MATERIALS
480 / 240 V, 3 PHASE, 3 WIRE
Dwg 53D

Revised: AUGUST 2016



CONTINUED ON 54A

TYPE "A" LIFT STATION
CONTROL PANEL WIRING DIAGRAM
230 V, 1 PHASE, 3 WIRE
Dwg 54

Revised: AUGUST 2016

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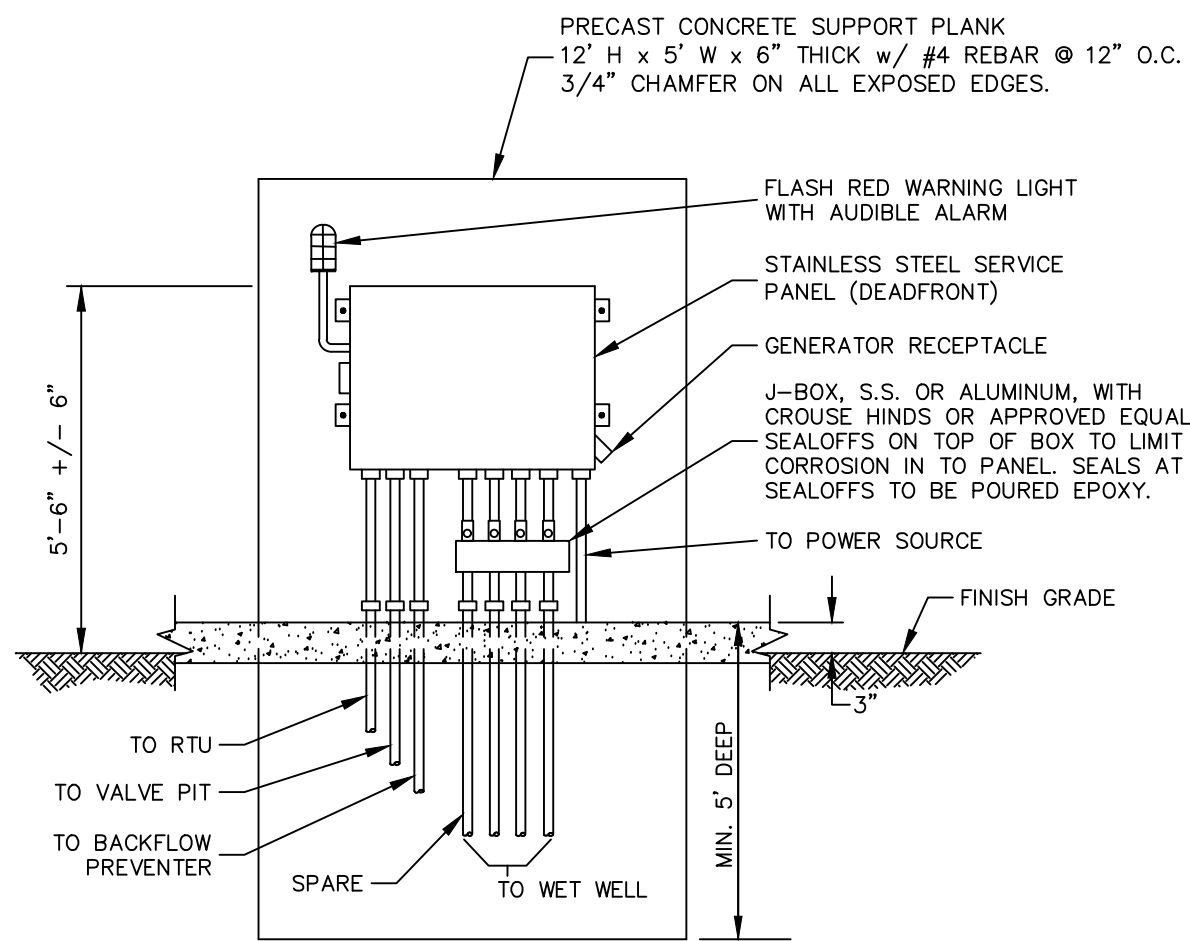
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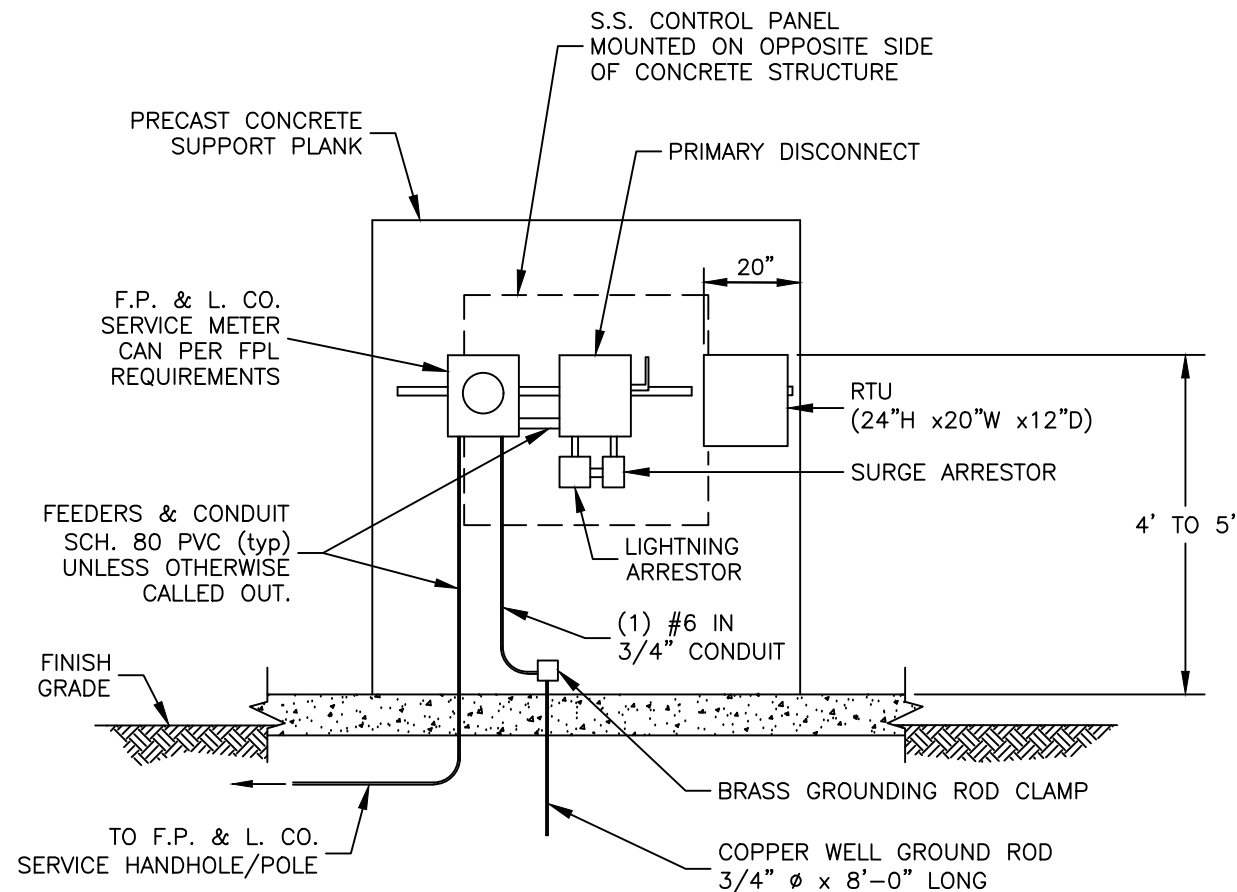


NOTES:

1. ELECTRIC METER AND PRIMARY DISCONNECT MOUNTED ON BACK SIDE OF PANEL.
2. EMERGENCY GENERATOR RECEPTABLES: RUSSELL & STOLL, JRSB 1044FR (FOR 100 amp SERVICE), 2044FR (FOR 200 amp SERVICE).
3. ALL POWER AND CONTROLS LINES SHALL BE CONTINUOUS (NO SPLICES).
4. POWER SUPPLY MECHANICALLY INTERLOCKED.
5. PHASE MONITOR ON ALL THREE PHASES (480 & 230 3ø); VOLTAGE MONITOR REQUIRED ON 1ø.
6. GROUND FAULT INTERRUPTER ON CONVENIENCE RECEPTACLE.
7. 1.5 K.V.A. TRANSFORMER IN ALL CONTROL PANELS.
8. PANEL MOUNTED TO S/S UNIFORM-STRUT BY WELDED TABS.
9. CONTROL PANEL SHALL BE UL LISTED AS A UNIT.
10. TELEMETRY CONDUIT SHALL BE INSTALLED BY THE CONTRACTOR WITH SWEEP 90 DEGREE BEND.
11. ALL HARDWARE, NUTS & BOLTS, AND APPURTENANCES ABOVE GROUND SHALL BE 316 STAINLESS STEEL.
12. ALL CONDUIT NOT ENTERING WETWELL SHALL BE SCHEDULE 80 P.V.C.
13. PANEL MOUNTING SHALL ALLOW FOR UNRESTRICTED VIEW OF ALARM LIGHT.
14. MOUNT RTU PANEL TO ALLOW FOR UNRESTRICTED LINE-OF-SIGHT TO ANTENNA FROM ALL DIRECTIONS.
15. INSTALL PANFLEX STRAIN RELIEF ON PUMP POWER LEADS IN J-BOX JUST ABOVE SLAB ON GRADE (THOMAS AND BETTS OR APPROVED EQUAL).
16. INSTALLATION IS NOT CLASSIFIED. SEALOFFS ARE USED SOLELY FOR THE PURPOSE OF LIMITING CORROSIVE CHEMICALS INTO THE ELECTRICAL EQUIPMENT.

TYPE "A" LIFT STATION TYPICAL CONTROL PANEL Dwg 50

Revised: AUGUST 2016



NOTES:

1. NO PENETRATION THROUGH PANEL TOPS.
2. TWENTY INCHES ON RIGHT SIDE OF SUPPORT PLANK (MEASURED FROM INSIDE EDGE OF RIGHT BEVEL) IS RESERVED FOR RTU AND ACCESSORIES.

BACK VIEW OF L.S. CONTROL PANEL

3.2 TOOLS AND SPARE PARTS

3.2.1 The manufacturer shall furnish the following on delivery of the pumping system;

3.2.1.1 One Spare Parts Kit Consisting of:

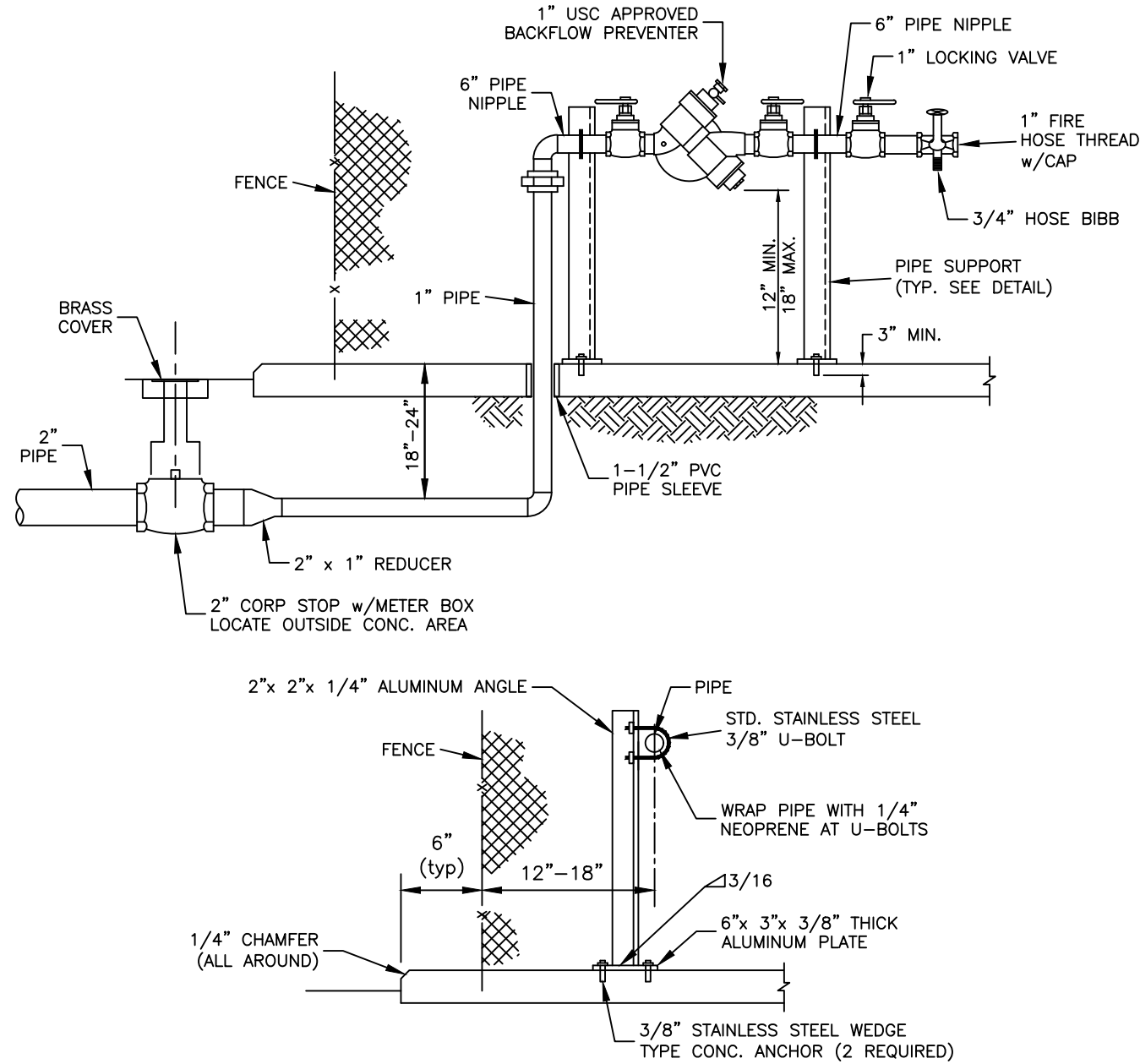
INCLUDES	PART NUMBER	DESCRIPTION
1	GPV4150F	GPV4-150# Valve Flapper
1	GPV4150300G	GPV4-150/300# Valve Cover Gasket
1	2305682016	Ejector Jet
1	2305712016	Ejector Nozzle
1	2305869923	CD80-HL80 Separation Tank Filter/Screen
10	4307639912	M12 Dowty Washer
2	3810041112A	Viton Wearplate O Ring
2	3810134112A	O Ring
2	3810144112A	Ejector Nozzle O Ring
1	3906414113A	Ejector Ball
1	4316129913	Compressor Pipe
2	4400369912A	Relief Valve
1	390H150	Compressor Belt
3	4905230300A	Valve Plate Gasket
3	4905230400A	Valve Plate Gasket
3	4905230900A	Head Gasket

3.2.1.2 An Operations and Maintenance manual for the pump and engine.

3.3 WARRANTY

3.3.1 The manufacturer shall furnish the following to the owner:

- 3.3.1.1 A copy of the engine manufacturer's parts and labor warranty.
- 3.3.1.2 A one-year Parts and Labor Warranty issued by the manufacturer on the Trash Pump System. This warranty must cover all pump parts, including the mechanical seal.

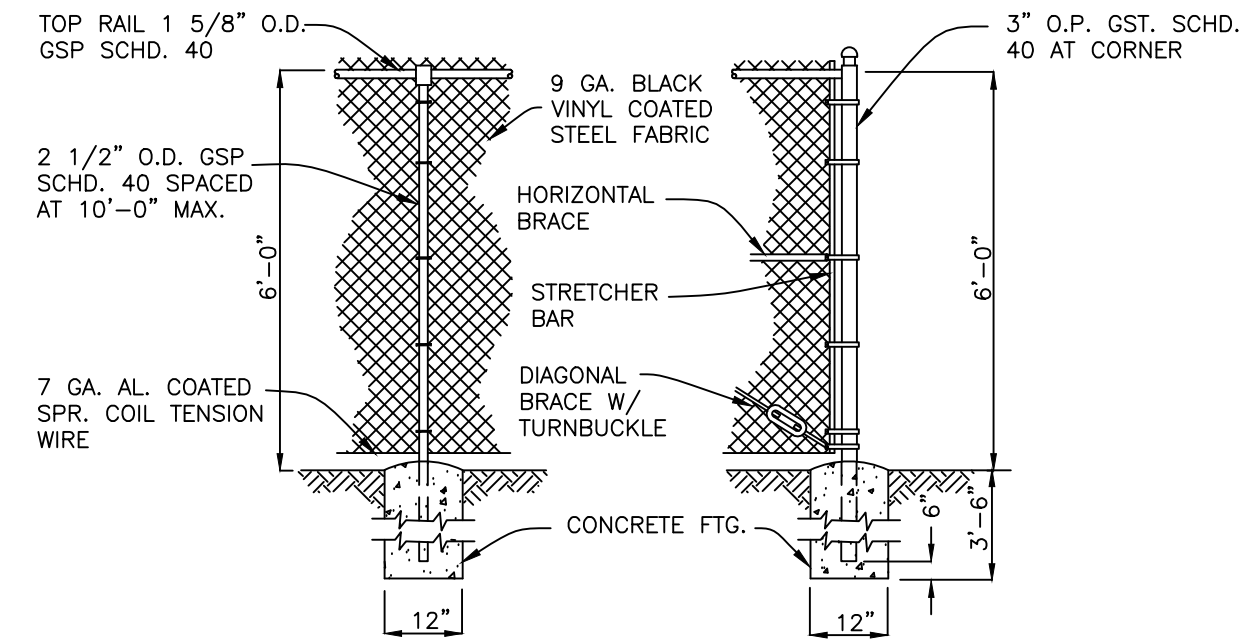


NOTES:

1. ALL ABOVE GRADE PIPING SHALL BE BRASS. FITTINGS SHALL BE BRONZE.
2. ALL JOINTS SHALL BE THREADED.
3. FOR LIFT STATION TO BE OWNED BY M.C.E.S. USE RPZ BACKFLOW PREVENTER BY FEBCO MODEL 825V, AMES SERIES 4000 SS (SILVER BULLET), OR APPROVED EQUAL.
4. MIN. 24" CLEARANCE BETWEEN RPZ BACKFLOW PREVENTER AND CONTROL PANEL REQUIRED.
5. THREADED AREAS OF CORPORATION STOP AND OTHER FITTINGS SHALL BE SPIRAL WRAPPED WITH TWO WRAPS OF TEFLON TAPE.

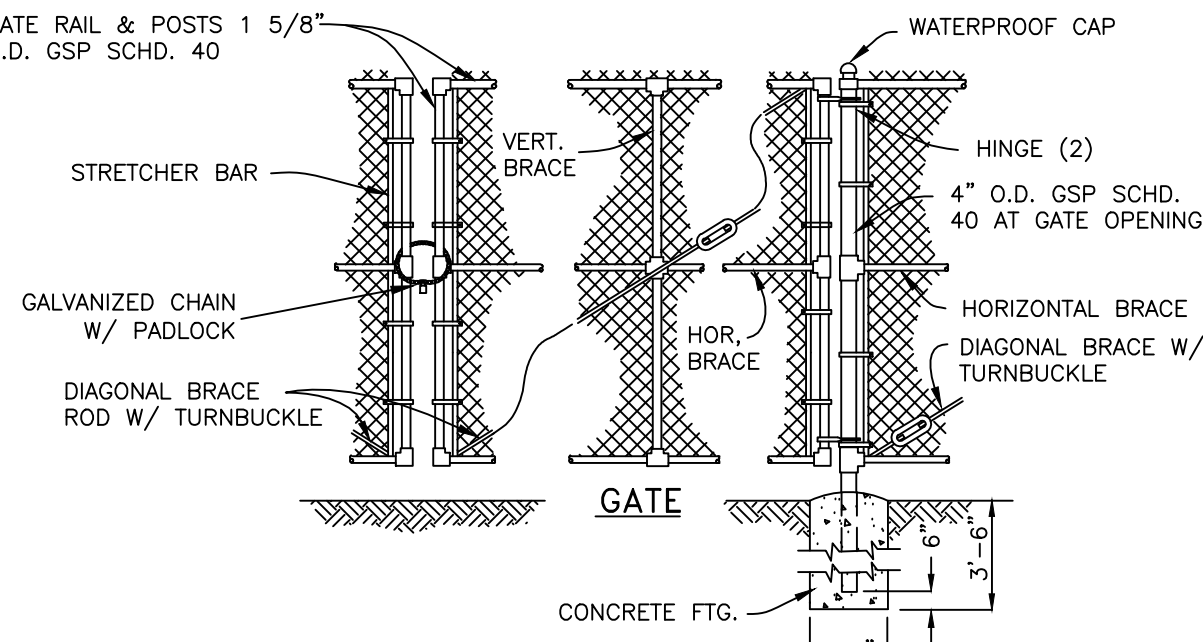
TYPE "A" & "B" LIFT STATIONS WATER SERVICE DETAIL Dwg 56

Revised: AUGUST 2016



LINE POST

CORNER POST



GATE POST

NOTES:

1. GATE TO BE 12"-0" CLEAR OPENING.
2. BLACK VINYL COATED STEEL WOVEN WIRE FABRIC TO BE STRETCHED TAUT W/ STRETCHER BARS AND STRAPS AND FASTENED TOP & BOTTOM AND AT LINE POSTS WITH GALV. PIG RING TIES.
3. GATE TO BE SECURED OPEN WITH GATE STOP SET IN CONCRETE.
4. ALL RAILS, POSTS AND HARDWARE TO BE VINYL COATED. ALL VINYL COATING SHALL BE BLACK.

TYPE "A" & "B" LIFT STATIONS FENCE DETAIL Dwg 57

Revised: AUGUST 2016

