

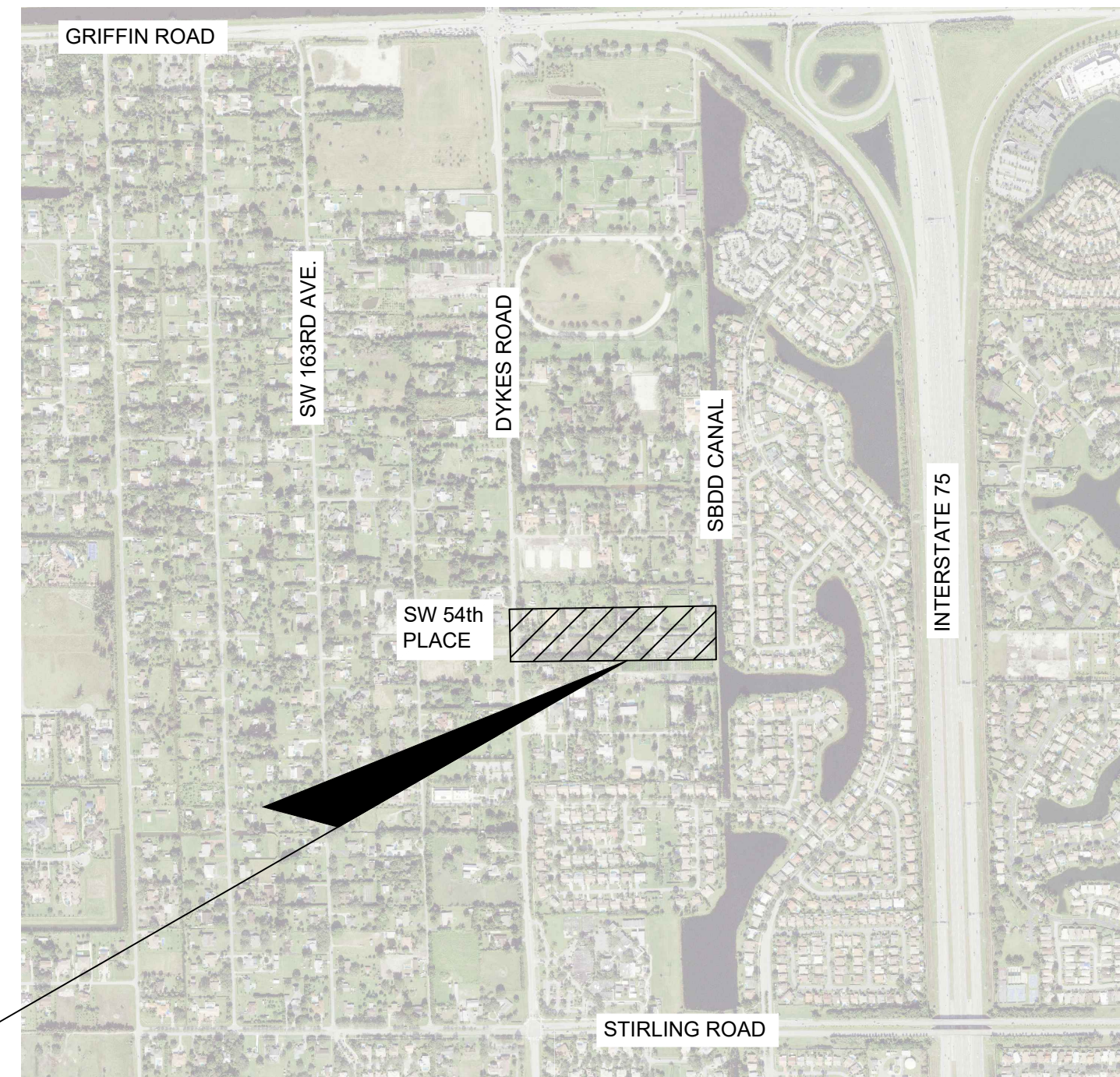
SW 54th PLACE DRAINAGE

PERMIT SET TOWN OF SOUTHWEST RANCHES BROWARD COUNTY, FLORIDA

LEGAL DESCRIPTION:

PORTION OF SECTION 33, TOWNSHIP 50 SOUTH, RANGE 40 EAST, BROWARD COUNTY, FLORIDA.

THIS PROJECT COVERS A PORTION OF THE RIGHTS-OF-WAY FOR SW 54th PLACE.



PROJECT LOCATION

LOCATION MAP

SECTION 33, TOWNSHIP 50 SOUTH, RANGE 40 EAST

PREPARED FOR:

TOWN OF SOUTHWEST RANCHES

SHEET INDEX		
SHEET NO.	DESCRIPTION	REV
C-1	COVER SHEET	
C-2	GENERAL NOTES & SPECIFICATIONS	
C-3	EXISTING CONDITIONS PLAN	
C-4	EXISTING CONDITIONS PLAN	
C-5	PAVING, GRADING, & DRAINAGE PLAN	
C-6	PAVING, GRADING, & DRAINAGE PLAN	
C-7	PAVING, GRADING, & DRAINAGE DETAILS	
C-8	EROSION CONTROL PLAN	
C-9	EROSION CONTROL PLAN	
C-10	PAVEMENT PLAN	
C-11	PAVEMENT PLAN	

REV. #	DESCRIPTION	DATE
1	COVER SHEET	

CONTACTS:

ROD LEY, TOWN ENGINEER
PATRICK J. GIBNEY, P.E PROJECT MANAGER
KEVIN HART, P.E., DISTRICT ENGINEER

TOWN OF SOUTHWEST RANCHES
CRAVEN THOMPSON & ASSOCIATES, INC.
SOUTH BROWARD DRAINAGE DISTRICT



CRAVEN • THOMPSON AND ASSOCIATES, INC.
ENGINEERS • PLANNERS • SURVEYORS

3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL.: (954) 739-6400

FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. C000114

MATERIAL SHOWN HEREON IS THE PROPERTY OF CRAVEN THOMPSON & ASSOCIATES, INC. AND SHALL NOT BE REPRODUCED IN WHOLE OR IN PART WITHOUT WRITTEN PERMISSION OF CRAVEN THOMPSON & ASSOCIATES, INC. CRAVEN THOMPSON & ASSOCIATES, INC. COPYRIGHT © 2019

Always call 811 two full business days before you dig to have underground utilities located and marked.



Glen Harrelson, P.E.
Florida P.E. No. 62939
June 27, 2023

VERTICAL INFORMATION HEREON IS RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88).

04/28/2023
22-0067-001-01

R:\Engineering\2022\22-0067 SW 54th Place Drainage\Drawings\22-0067_GN.dwg [C-2] Jun 27, 2023 4:09pm GHARRELSON

I. APPLICABLE CODES

- A. GENERAL:**
 ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF SOUTHWEST RANCHES, SOUTH BROWARD DRAINAGE DISTRICT (SBDD), SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD), AND ALL OTHER LOCAL AND NATIONAL CODES WHERE APPLICABLE.
- B. CONSTRUCTION SAFETY:**
 ALL CONSTRUCTION SHALL BE DONE IN A SAFE MANNER, SPECIFICALLY, THE RULES AND REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) SHALL BE STRICTLY OBSERVED.
- C. TRENCH SAFETY ACT**
 1. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLIANCE WITH THE STATE OF FLORIDA TRENCH SAFETY ACT.
 2. WHERE EXCAVATIONS TO A DEPTH IN EXCESS OF FIVE FEET (5') ARE REQUIRED THE CONTRACTOR SHALL INCLUDE THE FOLLOWING INFORMATION IN THE BID.
 A. A REFERENCE TO THE SAFETY STANDARDS THAT WILL BE IN EFFECT DURING THE PERIOD OF CONSTRUCTION OF THE PROJECT.
 B. WRITTEN ASSURANCES BY THE CONTRACTOR PERFORMING THE TRENCH EXCAVATION THAT SUCH CONTRACTOR WILL COMPLY WITH THE APPLICABLE TRENCH SAFETY STANDARDS.
 C. A SEPARATE ITEM IDENTIFYING THE COST OF COMPLIANCE WITH THE APPLICABLE TRENCH SAFETY STANDARDS.
 3. WHERE A BID IS NOT SUBMITTED, THE CONTRACTOR SHALL SUBMIT THE INFORMATION LISTED IN ITEM 2, TO THE ENGINEER PRIOR TO STARTING WORK.
- D. SURVEY DATA:**
 ALL ELEVATIONS ON THE PLANS OR REFERENCED IN THE SPECIFICATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1888 (NAVD).

II. PRECONSTRUCTION RESPONSIBILITY

- A. UPON RECEIPT OF NOTICE OF AWARD, THE CONTRACTOR SHALL ARRANGE A PRECONSTRUCTION CONFERENCE TO INCLUDE THE TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION, SBDD, AND THE ENGINEER, AFTER OBTAINING A CONSTRUCTION PERMIT FROM THE ENGINEERING DIVISION**
- B. THE CONTRACTOR SHALL OBTAIN A "SUNSHINE CERTIFICATION NUMBER" AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EXCAVATION.**
- C. PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE SIZE, LOCATION, ELEVATION, AND MATERIAL OF ALL EXISTING UTILITIES WITHIN THE AREA OF CONSTRUCTION.**
- D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY EXISTING UTILITIES FOR WHICH HE FAILS TO REQUEST LOCATIONS SUNSHINE CERTIFICATION NUMBER. HE IS RESPONSIBLE AS WELL FOR DAMAGE TO ANY EXISTING UTILITIES WHICH ARE PROPERLY LOCATED.**
- E. IF UPON EXCAVATION, AN EXISTING UTILITY IS FOUND TO BE IN CONFLICT WITH THE PROPOSED CONSTRUCTION OR TO BE OF A SIZE OR MATERIAL DIFFERENT FROM THAT SHOWN ON THE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER, WHO WILL IN TURN NOTIFY THE TOWN OF SOUTHWEST RANCHES ENGINEERING DEPARTMENT.**

III. INSPECTIONS

- THE CONTRACTOR SHALL NOTIFY THE TOWN OF SOUTHWEST RANCHES ENGINEERING DIVISION (954-434-0008), SBDD (954-880-3337), AND THE ENGINEER OF RECORD AT LEAST 24 HOURS PRIOR TO THE INSPECTION OF THE FOLLOWING ITEMS:
- A. 1. STORM DRAINAGE.**
 2. SUBGRADE; SUBMIT AND HAVE APPROVED DENSITIES PRIOR TO PLACEMENT OF ROCK.
 3. LIMEROCK BASE; SUBMIT AND HAVE APPROVED DENSITIES AND AS-BUILTS PRIOR TO THE PLACEMENT OF ANY ASPHALT.
 4. ASPHALTIC CONCRETE.
 5. FINAL.
- B. ALL INSPECTIONS MADE BY THE TOWN OF SOUTHWEST RANCHES, SBDD, AND THE ENGINEER OF RECORD WILL PROVIDE CONSTRUCTION OBSERVATION SERVICES.**

IV. SHOP DRAWINGS

- A. PRIOR TO CONSTRUCTION, ALL SHOP DRAWINGS SHALL BE SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE TOWN OF SOUTHWEST RANCHES, SBDD AND THE ENGINEER OF RECORD.**
- B. INDIVIDUAL SHOP DRAWINGS FOR ALL PRECAST STRUCTURES ARE REQUIRED. CATALOGUE LITERATURE WILL NOT BE ACCEPTED FOR PRECAST STRUCTURES.**

V. TEMPORARY FACILITIES

- A. TEMPORARY UTILITIES:**
 1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY TO HIS EMPLOYEE AND SUBCONTRACTORS FOR THEIR USE DURING CONSTRUCTION.
 2. OBTAIN CONSTRUCTION METER FOR ALL WATER USED ON JOB. ALL WATER USED FOR CLEANING, TESTING, ETC. WILL BE PAID FOR BY THE CONTRACTOR. IF WATER CAN NOT BE METERED THEN IT WILL BE CALCULATED.
- B. TRAFFIC REGULATION:**
 1. MAINTENANCE OF TRAFFIC IN THE PUBLIC RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH THE MUTCD AND BCTD.
 2. ALL OPEN TRENCHES AND HOLES ADJACENT TO ROADWAYS OR WALKWAYS SHALL BE MARKED AND BARRICADED TO ASSURE THE SAFETY OF BOTH VEHICULAR AND PEDESTRIAN TRAFFIC.
 3. NO TRENCHES OR HOLES NEAR WALKWAYS OR IN ROADWAYS OR THEIR SHOULDERS ARE TO BE LEFT OPEN DURING NIGHTTIME HOURS WITHOUT EXPRESS PERMISSION OF THE CITY OF PEMBROKE PINES.

VI. PROJECT CLOSE OUT

- A. CLEANING UP:**
 1. DURING CONSTRUCTION, THE PROJECT SITE AND ALL ADJACENT AREAS SHALL BE MAINTAINED IN A NEAT AND CLEAN MANNER. UPON FINAL CLEAN UP, THE PROJECT SITE SHALL BE LEFT CLEAR OF ALL SURPLUS MATERIAL OR TRASH. THE PAVED AREAS SHALL BE SWEEPED BROOM CLEAN.
 2. THE CONTRACTOR SHALL RESTORE OR REPLACE, WHEN AND AS DIRECTED BY THE ENGINEER OR THE CITY OF PEMBROKE PINES, ANY PUBLIC OR PRIVATE PROPERTY DAMAGED BY HIS WORK, EQUIPMENT, EMPLOYEES OR THOSE OF HIS SUBCONTRACTORS TO A CONDITION AT LEAST EQUAL TO THAT EXISTING IMMEDIATELY PRIOR TO THE BEGINNING OF OPERATIONS. TO THIS END, THE CONTRACTOR SHALL DO AS REQUIRED, ALL NECESSARY HIGHWAY OR DRIVEWAY, SIDEWALK AND LANDSCAPING WORK. SUITABLE MATERIALS AND METHODS SHALL BE USED FOR SUCH RESTORATION.
 3. WHERE MATERIAL OR DEBRIS HAS WASHED OR FLOWED INTO OR BEEN PLACED IN WATER COURSES, GRAVITY SEWER, DITCHES, DRAINS, CATCH BASINS, OR ELSEWHERE AS A RESULT OF THE CONTRACTOR'S OPERATIONS, SUCH MATERIAL OR DEBRIS SHALL BE REMOVED AND SATISFACTORILY DISPOSED OF DURING PROGRESS OF THE WORK, AND THE AREA KEPT IN A CLEAN AND NEAT CONDITION.
 4. WHEN WORKING IN AND AROUND EXISTING DRAINAGE CANALS, APPROPRIATE SILT BARRIERS SHALL BE INSTALLED AS REQUIRED BY SOUTH BROWARD DRAINAGE DISTRICT.
- B. PROJECT RECORD DOCUMENTS:**
 1. THE CONTRACTOR SHALL MAINTAIN ACCURATE AND COMPLETE RECORDS OF ALL WORK ITEMS COMPLETED.
 2. ALL "AS-BUILT" INFORMATION SUBMITTED TO THE ENGINEER SHALL BE SUFFICIENTLY ACCURATE, CLEAR AND LEGIBLE TO SATISFY THE ENGINEER THAT THE INFORMATION PROVIDED A TRUE REPRESENTATION OF THE IMPROVEMENTS CONSTRUCTED.
 3. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD ONE COMPLETE SET OF "AS-BUILT" CONSTRUCTION DRAWINGS. THESE DRAWINGS SHALL BE MARKED TO SHOW "AS-BUILT" CONSTRUCTION CHANGES AND DIMENSIONED LOCATIONS AND ELEVATIONS OF ALL IMPROVEMENTS AND SHALL BE SIGNED BY THE CONTRACTOR.
 4. ALL "AS-BUILT" INFORMATION ON ELEVATIONS, STATIONING OFFSETS AND TIES OF THE WATER, SANITARY SEWER, PAVING AND DRAINAGE SHALL BE CERTIFIED BY A REGISTERED LAND SURVEYOR.
 5. PRIOR TO A FINAL INSPECTION BY THE TOWN OF SOUTHWEST RANCHES, THE CONTRACTOR SHALL SUBMIT "AS-BUILT" CONSTRUCTION DRAWINGS.
 6. PRIOR TO PLACEMENT OF ANY ASPHALT OR CONCRETE PAVEMENT, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER "AS-BUILT" PLANS SHOWING LIMEROCK, BASE GRADES AND ALL DRAINAGE, WATER AND SEWER IMPROVEMENTS. PAVING OPERATIONS SHALL NOT COMMENCE UNTIL THE ENGINEER AND THE TOWN OF SOUTHWEST RANCHES HAVE REVIEWED AND APPROVED THE "AS-BUILTS".
 7. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR SUBGRADE SHALL BE PROVIDED TO AND APPROVED BY THE ENGINEER AND THE TOWN OF SOUTHWEST RANCHES PRIOR TO THE PLACING THE LIMEROCK BASE MATERIAL.
 8. ALL REQUIRED DENSITY AND LBR TEST RESULTS FOR LIMEROCK SHALL BE PROVIDED TO AND APPROVED BY THE ENGINEER AND THE TOWN OF SOUTHWEST RANCHES PRIOR TO PLACING ASPHALT.

VII. EARTHWORK AND COMPACTION

- A. GENERAL:**
 1. NONE OF THE EXISTING MATERIAL IS TO BE INCORPORATED IN THE LIMEROCK BASE.
 2. ALL SUBGRADE UNDER PAVED AREAS SHALL HAVE A MINIMUM LBR VALUE OF 40 AND AND SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
 3. ALL FILL MATERIAL IN AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
 4. A 2" BLANKET OF TOP SOIL SHALL BE PLACED OVER ALL AREAS TO BE SODDED.
 5. SOD SHALL BE ST. AUGUSTINE, BITTER BLUE OR FLORATAM AND SHALL BE PLACED ON THE GRADED TOP SOIL AND WATERED TO INSURE SATISFACTORY CONDITION UPON FINAL ACCEPTANCE OF THE PROJECT.
 6. WHEN WORKING IN AND AROUND EXISTING DRAINAGE CANALS OR LAKES, APPROPRIATE SILT BARRIERS SHALL BE INSTALLED.
- B. ON-SITE:**
 1. ALL ORGANIC AND OTHER UNSUITABLE MATERIAL WITHIN THREE FEET OF AREAS TO BE PAVED SHALL BE REMOVED.
 2. SUITABLE BACKFILL SHALL BE MINIMUM LBR 40 MATERIAL COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180 FOR THREE (3) FEET BEYOND THE PERIMETER OF THE PAVING.

VIII. STORM DRAINAGE

- A. CONTRACTOR MAY UTILIZE ONE OF THE FOLLOWING MATERIALS IN LIEU OF HDPE.**
- 1. ALUMINUM**
 A. PIPE SHALL BE ALUMINUM, MANUFACTURED IN CONFORMANCE WITH ASTM B209.
 B. PIPE SHALL BE SPIRAL RIB DRAINAGE PIPE WITH 3/4" BY 3/4" RIBS, APPROXIMATELY 7-1/2" ON CENTER. GAUGE THICKNESS SHALL MEET FDOT STANDARD 945-1.
 C. PIPE COUPLING BANDS SHALL BE 1/2" WIDE STANDARD SPLIT BANDS OF THE SAME ALLOY AS THE PIPE AND MAY BE ONE GAUGE LIGHTER THAN THE PIPE.
 D. POLYURETHANE OR OTHER SEALANT SHALL BE USED WITH COUPLING BANDS ON ALL NON-PERFORATED PIPE.
- 2. REINFORCED CONCRETE PIPE (RCP)**
 CONCRETE PIPE FOR STORM SEWERS SHALL CONFORM TO ASTM L70-79, TABLE III, WALL B, OR LATEST REVISION. ALL PIPE SHALL HAVE MODIFIED TONGUE AND GROOVE JOINTS, AND HAVE RUBBER GASKETS, UNLESS OTHERWISE SPECIFIED.
- 3. MISCELLANEOUS**
 A. BEDDING AND INITIAL BACKFILL OVER DRAINAGE PIPES SHALL BE SAND WITH NO ROCK LARGER THAN 1" DIAMETER.
 B. BACKFILL MATERIAL UNDER PAVED AREAS SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
 C. BACKFILL MATERIAL UNDER AREAS NOT TO BE PAVED SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T-180.
 D. CATCH BASINS SHALL BE PRECAST MINIMUM 3000 PSI CONCRETE AND GRADE 40 REINFORCED STEEL.
- 4. INSTALLATION:**
 A. PIPE SHALL BE PLACED ON STABLE GRANULAR MATERIAL FREE OF ROCK FORMATION OTHER FOREIGN FORMATIONS, AND CONSTRUCTED TO UNIFORM GRADE AND LINE.
 B. BACKFILL MATERIAL SHALL BE WELL GRADED GRANULAR MATERIAL WELL TAMPED IN LAYERS NOT TO EXCEED SIX INCHES (6").
 C. PROVIDE A MINIMUM PROTECTIVE COVER OF 18 INCHES OVER STORM SEWER AND AVOID UNNECESSARY CROSSING BY HEAVY CONSTRUCTION VEHICLES DURING CONSTRUCTION
 D. THE CONTRACTOR SHALL NOTIFY THE LOCAL WATER CONTROL DISTRICT AT LEAST 24 HOURS PRIOR TO THE START OF THE CONSTRUCTION AND INSPECTION.

IX. STORM DRAINAGE PRE-TREATMENT/EXFILTRATION SYSTEM

- A. ANY CONFLICT WITH EXISTING OR PROPOSED UTILITIES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER. ANY IMPERMEABLE MATERIAL ENCOUNTERED IN THE EXCAVATION FOR THE DRAIN FIELD SHALL BE REMOVED AS DIRECTED BY THE ENGINEER.**
- B. THE TRENCH LINER SHALL BE TYPAR SPUN BONDED POLYPROPYLENE FILTER FABRIC AS MANUFACTURED BY THE DUPONT COMPANY, OR APPROVED EQUAL. IT SHALL BE USED ON THE SIDES AND TOP OF DRAIN FIELD DITCH. THE TOP SECTION OF THE MATERIAL SHALL BE LAPPED A MINIMUM OF 24 INCHES AND THE CONTRACTOR SHALL TAKE EXTREME CARE IN BACKFILLING TO AVOID BUNCHING OF THE FABRIC.**
- C. PERFORATED PIPE WITHIN THE DRAIN FIELD SHALL HAVE 3/8 INCH PERFORATIONS 360° AROUND THE PIPE WITH APPROXIMATELY 120 PERFORATIONS PER FOOT OF PIPE.**
- D. PERFORATED PIPE SHALL TERMINATE FIVE FEET (5') FROM THE DRAINAGE STRUCTURE. THE REMAINING FIVE FEET (5') SHALL BE NON-PERFORATED PIPE.**
- E. PIPES SHALL TERMINATE TWO FEET (2') FROM THE END OF THE TRENCH OR CONNECT TO ADDITIONAL CATCH BASINS.**

X. PAVING

- A. GENERAL:**
 1. ALL UNDERGROUND UTILITIES SHALL BE COMPLETED PRIOR TO THE CONSTRUCTION OF LIMEROCK BASE AND PRIOR TO PLACEMENT OF THE PAVEMENT.
 2. ALL EXISTING PAVEMENT CUT OR DAMAGED BY CONSTRUCTION SHALL BE PROPERLY RESTORED AT THE CONTRACTOR'S EXPENSE.
 3. WHERE PROPOSED PAVEMENT IS TO BE CONNECTED TO EXISTING PAVEMENT, THE EXISTING EDGE OF PAVEMENT SHALL BE SAW CUT.
 4. ALL STREET CORNER PAVEMENT RADI SHALL BE 25 FEET UNLESS OTHERWISE NOTED ON THE PLANS.
 5. UPON COMPLETION OF DRAINAGE IMPROVEMENTS AND LIMEROCK BASE CONSTRUCTION (AND BEFORE PLACING ASPHALT PAVEMENT) THE CONTRACTOR SHALL FURNISH THE ENGINEER OF RECORD AND THE TOWN OF SOUTHWEST RANCHES "AS-BUILT" PLANS FOR THESE IMPROVEMENTS, SHOWING THE LOCATIONS AND THE PERTINENT GRADES OF ALL DRAINAGE INSTALLATIONS AND THE FINISHED ROCK GRADES OF THE ROAD CROWN AND EDGE OF PAVEMENT AT 50 FEET INTERVALS. THESE "AS-BUILTS" SHALL BE APPROVED BY THE CITY PRIOR TO THE PLACEMENT OF ASPHALT.
- B. MATERIALS:**
 1. BASE COURSE SHALL BE CRUSHED LIMEROCK MIAMI OOLITE WITH A MINIMUM OF 70% CARBONATES OF CALCIUM AND MAGNESIUM 60% FOR LOCAL STREETS AND PARKING AREAS) AND A MINIMUM LIMEROCK BEARING RATIO 100.
 2. PRIME COAT AND TACK COAT SHALL MEET F.D.O.T. STANDARDS.
 3. SURFACE COURSE SHALL BE EQUAL TO F.D.O.T. TYPE S-3 ASPHALT.
 4. REINFORCED CONCRETE SLABS SHALL BE CONSTRUCTED OF CLASS I CONCRETE WITH A MINIMUM STRENGTH OF 3,000 PSI AND SHALL BE REINFORCED WITH A 6" x 6" No. 6 GAUGE WIRE MESH.
- C. INSTALLATION:**
 1. LIMEROCK BASE MATERIAL SHALL BE 8 INCHES THICK AND SHALL BE COMPACTED TO 98% OF THE MAXIMUM DENSITY AS DETERMINED BY AASHTO T80-C.
 2. LIMEROCK BASE MATERIAL SHALL BE PLACED IN MAXIMUM 6" LIFTS. BASES GREATER THAN 6" SHALL BE PLACED IN TWO OR MORE EQUAL LIFTS.
 3. ASPHALTIC CONCRETE SHALL BE A MINIMUM OF 1 1/2" THICK AND SHALL BE PLACED TWO 3/4" LIFTS. (NOTE: SECOND LIFT TO BE PLACED AFTER A MINIMUM OF 80% OF THE HOUSES HAVE BEEN COMPLETED OR AS DIRECTED BY THE CITY ENGINEER..)
 4. PRIME COAT SHALL BE PLACED ON ALL LIMEROCK BASES IN ACCORDANCE WITH F.D.O.T. STANDARDS.
 5. TACK COAT SHALL BE PLACED AS REQUIRED IN ACCORDANCE WITH F.D.O.T. STANDARDS.
- D. TESTING:**
 ALL SUBGRADE, LIMEROCK AND ASPHALT TESTS REQUIRED SHALL BE TAKEN AT THE DIRECTION OF THE ENGINEER AND/OR THE TOWN OF SOUTHWEST RANCHES.
 1. THE FINISHED SURFACE OF THE BASE COURSE AND THAT OF THE WEARING SURFACE SHALL NOT VARY MORE THAN 1/4" FROM THE TEMPLET. ANY IRREGULARITIES EXCEEDING THIS LIMIT SHALL BE CORRECTED.
 2. DENSITY TESTS SHALL BE TAKEN BY AN INDEPENDENT TESTING LABORATORY, CERTIFIED BY THE STATE OF FLORIDA, AND TAKEN AS DIRECTED BY THE ENGINEER AND THE TOWN OF SOUTHWEST RANCHES.
 3. ALL TESTING COSTS (PAVING) SHALL BE PAID FOR BY THE OWNER EXCEPT THOSE TESTS FAILING TO MEET THE SPECIFIED REQUIREMENTS, WHICH ARE TO BE PAID BY THE CONTRACTOR.

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:

DATE: 11/04/2022 DRAWN BY: GH
 SCALE: N/A CHECKED BY: P/JG
 DESIGN BY: GH APPROVED BY:

Craven • Thompson and Associates, Inc.
 ENGINEERS • PLANNERS • SURVEYORS
 3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
 FAX: (954) 739-6409 TEL: (954) 739-6400
 FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
 FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. C000114

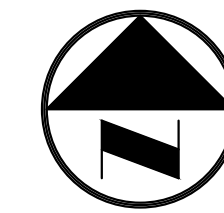
SW 54th PLACE DRAINAGE SECTION 33, TOWNSHIP 50, RANGE 40 BROWARD COUNTY, FLORIDA

GENERAL NOTES & SPECIFICATIONS
 PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

PROJECT NO.
22-0067-001-01

SHEET NAME
C-2
 SHEET 2 OF 11

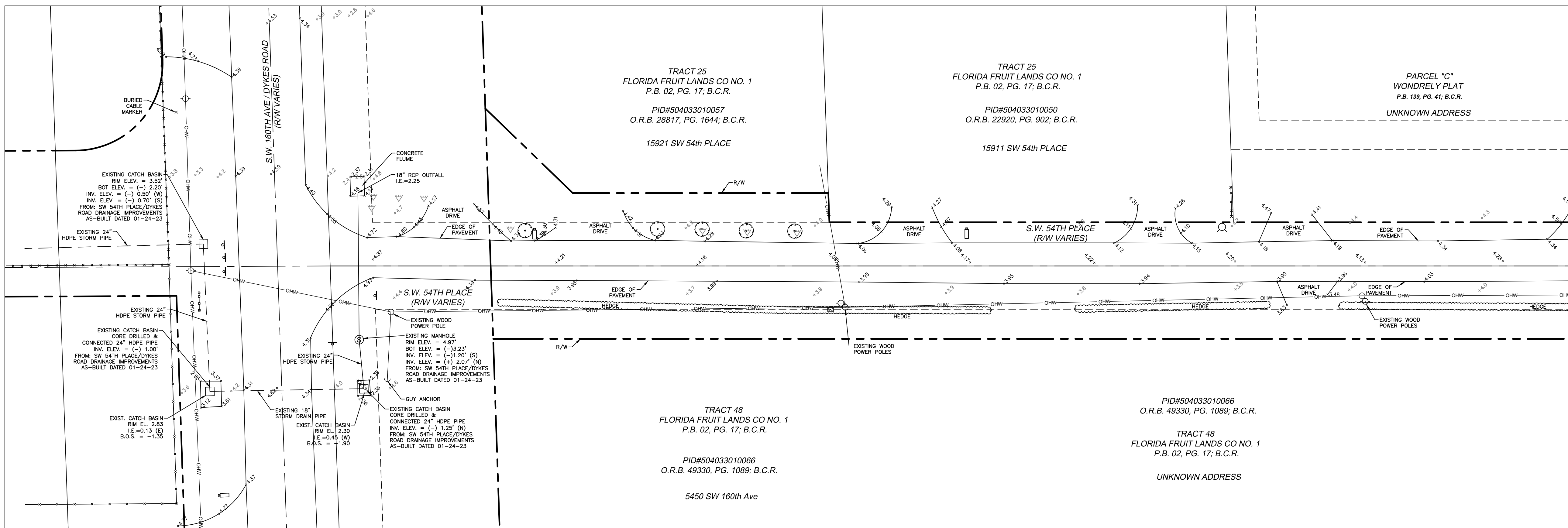
Glen Harrelson, P.E.
 Florida P.E. No. 62939
 June 27, 2023



0 20' 40'

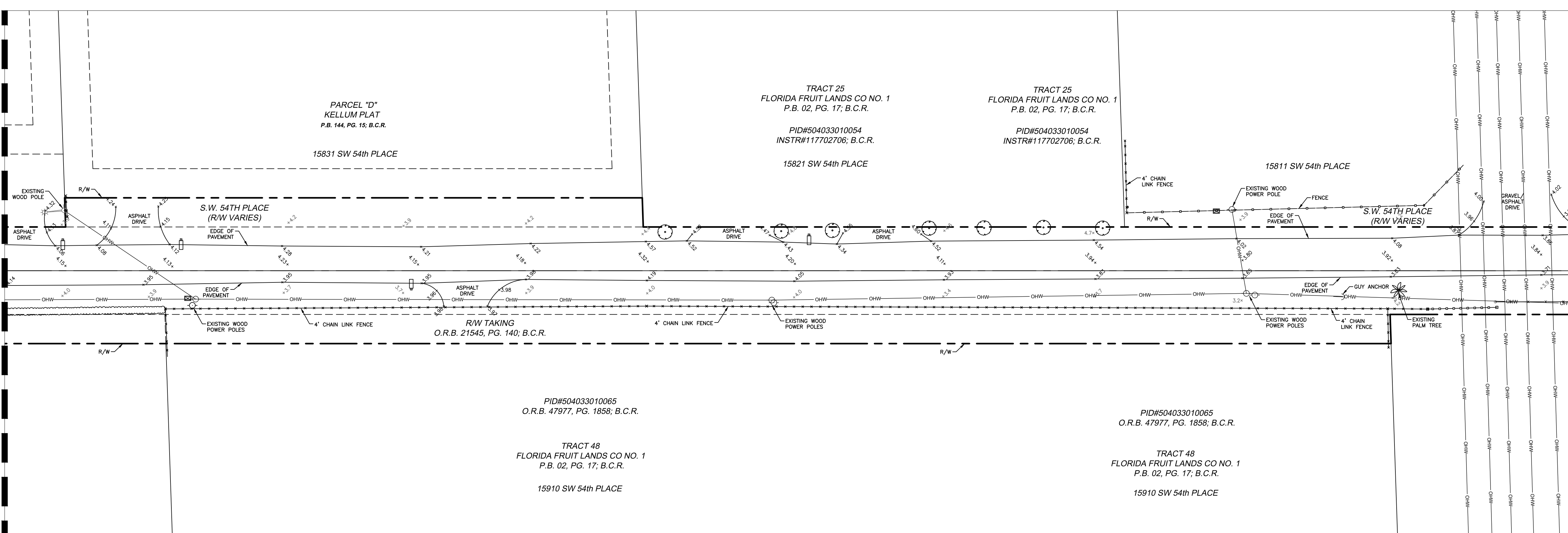
EXISTING LEGEND:

- ANCHOR
- BLOW-OFF VALVE
- CATCH BASIN
- CONCRETE LIGHT POLE
- CONCRETE POST
- CONCRETE POWER POLE
- CURB INLET
- ELECTRICAL OUTLET
- ELECTRICAL PANEL
- ELECTRICAL PULL BOX
- ELECTRICAL MANHOLE
- GAS MARKER
- HEADWALL
- TRAFFIC POLE
- TRAFFIC PULL BOX
- TRANSFORMER PAD
- WATER BLOW-OFF
- WATER VALVE
- WOOD POWER POLE
- METAL LIGHT POLE
- MONITORING WELL
- PIPE
- PARKING LIGHT 2 SQUARE
- SANITARY MANHOLE
- SIGN
- SPOT-FLOOD LIGHT
- SANITARY SEWER CLEAN OUT
- STORM MANHOLE
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE PULL BOX
- OVER HEAD WIRES
- TOP OF BANK
- TOE OF SLOPE
- WATER MAIN
- GUARDRAIL
- NON-VEHICULAR ACCESS LINE



MATCH LINE SEE BELOW

MATCH LINE SEE SHEET C-4



MATCH LINE SEE ABOVE

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:

CRAVEN • THOMPSON AND ASSOCIATES, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
 FAX: (954) 739-6409 TEL: (954) 739-6400
 FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS NO. 271
 FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. C000114

**SW 54th PLACE DRAINAGE
 SECTION 33, TOWNSHIP 50, RANGE 40
 BROWARD COUNTY, FLORIDA**

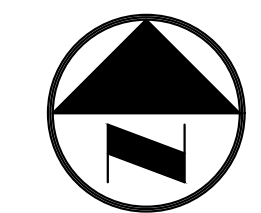
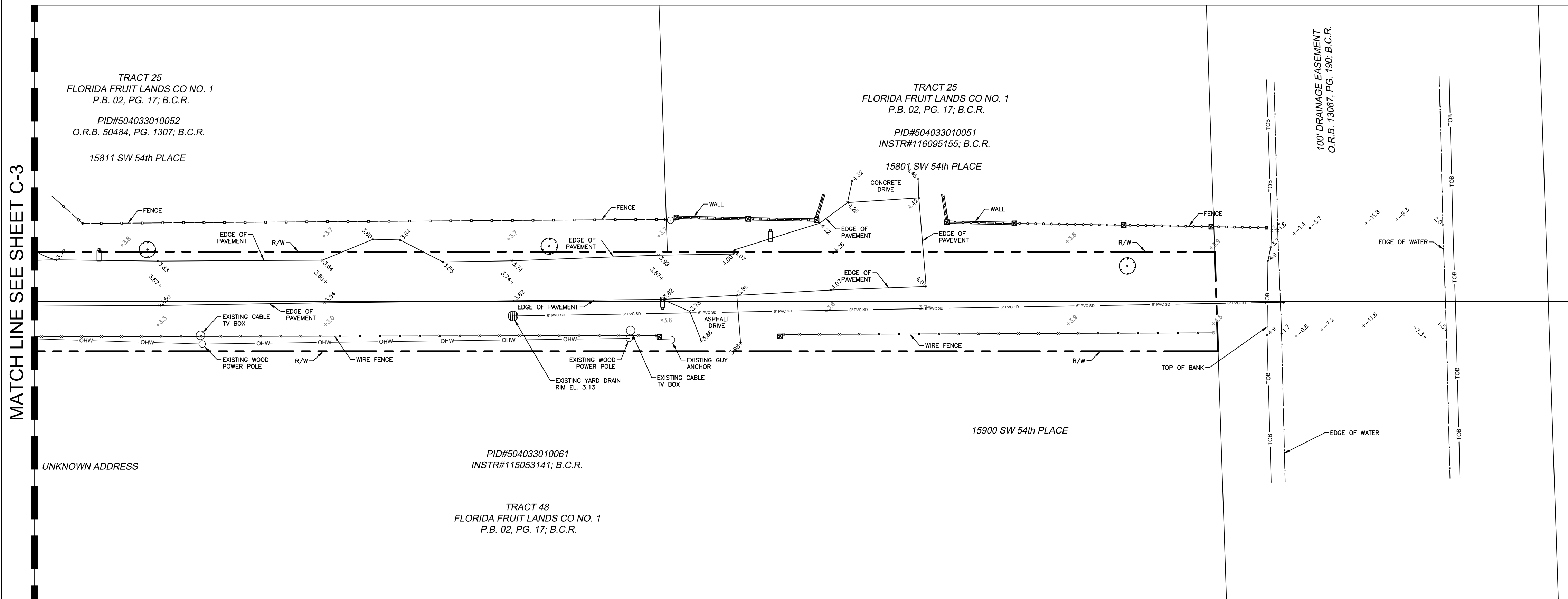
EXISTING CONDITIONS PLAN
 PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

PROJECT NO.
22-0067-001-01

SHEET NAME
C-3
 SHEET 3 OF 11

Glen Harrelson, P.E.
 Florida P.E. No. 62939
 June 27, 2023

R:\Engineering\2022\22-0067-SW 54th Place Drainage\Drawings\22-0067-01-01 ECD.dwg [C-4] Jun 27, 2023 4:09pm GHARRELSON



EXISTING LEGEND:

- ANCHOR
- BLOW-OFF VALVE
- CATCH BASIN
- CONCRETE LIGHT POLE
- CONCRETE POST
- CONCRETE POWER POLE
- CURB INLET
- ELECTRICAL OUTLET
- ELECTRICAL PANEL
- ELECTRICAL PULL BOX
- GAS MARKER
- HEADWALL
- TRAFFIC PULL BOX
- TRANSFORMER PAD
- WATER BLOW-OFF
- WATER VALVE
- WOOD POWER POLE
- METAL LIGHT POLE
- MONITORING WELL
- PIPE
- PARKING LIGHT 2 SQUARE
- SANITARY MANHOLE
- SIGN
- SPOT-FLOOD LIGHT
- SANITARY SEWER CLEAN OUT
- STORM MANHOLE
- TELEPHONE MANHOLE
- TELEPHONE PEDESTAL
- TELEPHONE PULL BOX
- OVER HEAD WIRES
- TOP OF BANK
- TOE OF SLOPE
- WATER MAIN
- GUARDRAIL
- NON-VEHICULAR ACCESS LINE

MATCH LINE SEE SHEET C-3

UNKNOWN ADDRESS

TRACT 25
FLORIDA FRUIT LANDS CO NO. 1
P.B. 02, PG. 17; B.C.R.
PID#504033010052
O.R.B. 50484, PG. 1307; B.C.R.
15811 SW 54th PLACE

TRACT 25
FLORIDA FRUIT LANDS CO NO. 1
P.B. 02, PG. 17; B.C.R.
PID#504033010051
INSTR#116095155; B.C.R.
15801 SW 54th PLACE

PID#504033010061
INSTR#115053141; B.C.R.

TRACT 48
FLORIDA FRUIT LANDS CO NO. 1
P.B. 02, PG. 17; B.C.R.

100' DRAINAGE EASEMENT
O.R.B. 13067, PG. 190; B.C.R.

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:

Craven • Thompson and Associates, Inc.
 ENGINEERS • PLANNERS • SURVEYORS
 3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
 FAX: (954) 739-6409 TEL: (954) 739-6400
 FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
 FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. C000114

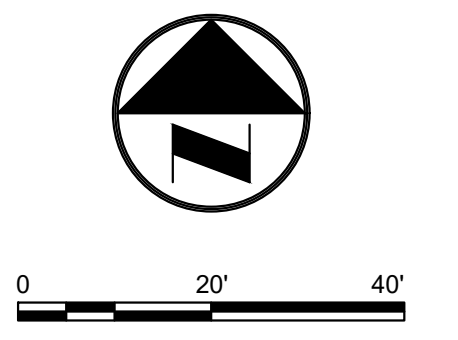
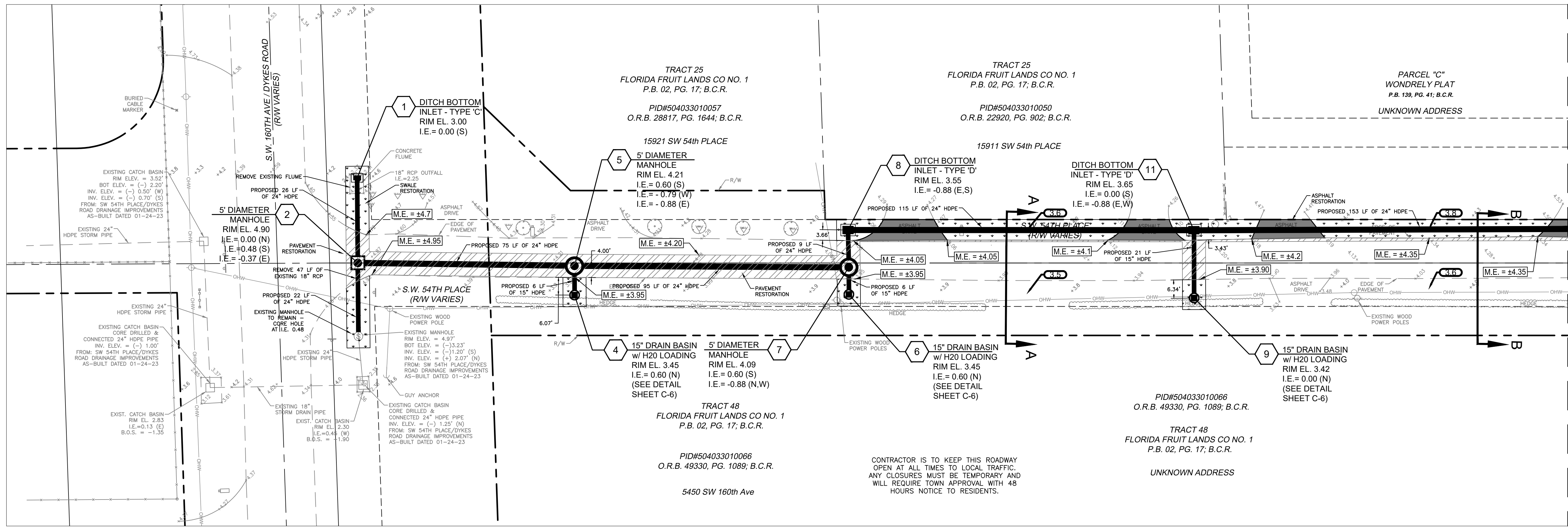
SW 54th PLACE DRAINAGE
SECTION 33, TOWNSHIP 50, RANGE 40
BROWARD COUNTY, FLORIDA

EXISTING CONDITIONS PLAN
 PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

PROJECT NO.	SHEET NAME
21-0067-001-01	C-4
SHEET 4 OF 11	

Glen Harrelson, P.E.
Florida P.E. No. 62939
June 27, 2023

R:\Engineering\2022\22-0667-001-01 PID.dwg [C-5] Jun 27, 2023 4:09pm GHARRELSON

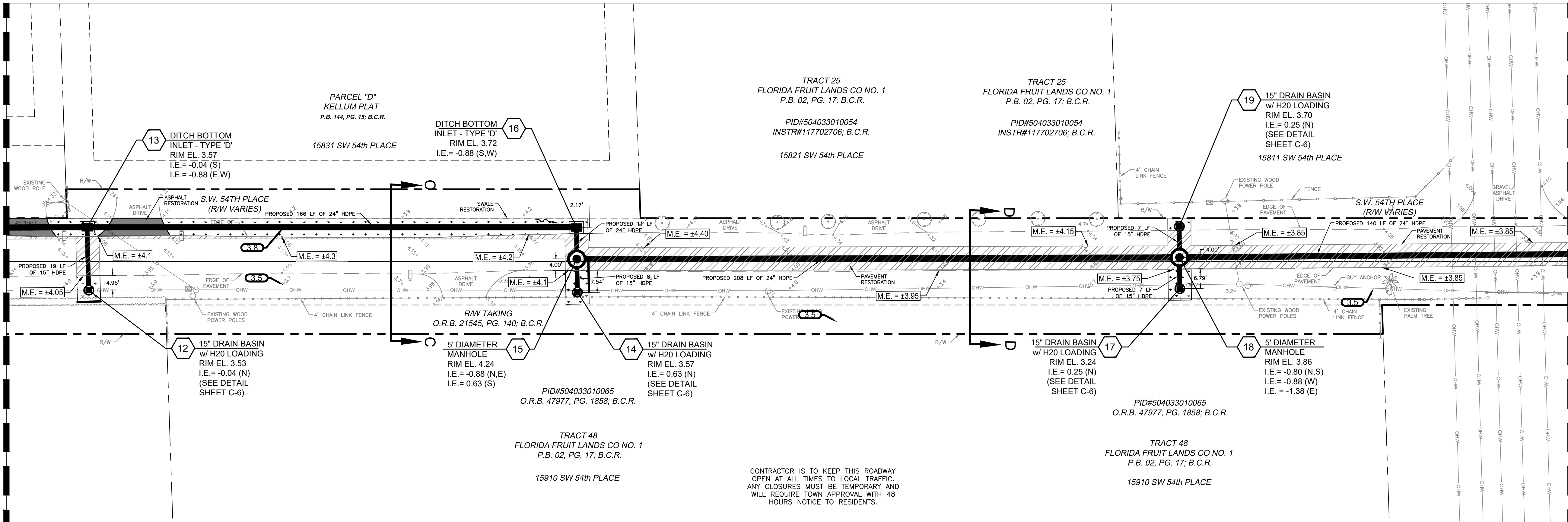


- LEGEND**
- PROP. PAVEMENT TO BE RESTORED
 - SWALE AREA TO BE RESTORED
 - DRAINAGE STRUCTURE NUMBER
 - CB-6"Ø DRAINAGE STRUCTURE TYPE
 - R.E.= RIM ELEVATION
 - G.E.= GRATE ELEVATION
 - I.E.= INVERT ELEVATION
 - PROPOSED DRAINAGE MANHOLE
 - PROPOSED DRAINAGE CATCH BASIN
 - PROPOSED DRAINAGE WELL
 - DRAINAGE FLOW DIRECTION
 - 5.35' PROPOSED PAVEMENT ELEVATION
 - 6.40' PROPOSED CONCRETE ELEVATION
 - P-5 PROPOSED PIPE
 - PROPOSED STORM SEWER
 - PROPOSED EXFILTRATION TRENCH
 - PROPOSED ASPHALT PAVEMENT
 - CONCRETE PAVEMENT/SIDEWALK
 - PROPOSED PAVERS
 - SOD
 - MILL AND OVERLAY

MATCH LINE SEE BELOW

MATCH LINE SEE SHEET C-6

- NOTES:**
- 1) CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING UNDER AND AROUND EXISTING OVERHEAD ELECTRIC LINES. CONTRACTOR SHALL NOTIFY AND COORDINATE WITH FPL ON ANY SAFETY OR OTHER ISSUES REGARDING OVERHEAD POWER LINES.
 - 2) CONTRACTOR SHALL COORDINATE WITH FPL AS NECESSARY, TO SECURE ANY EXISTING POWER POLES IN THE VICINITY OF THE PROPOSED CONSTRUCTION WORK. THE COST TO SECURE ANY EXISTING POWER POLES SHALL BE INCLUDED IN THE LUMP PRICE FOR THE PROJECT.
 - 3) UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL CLEAN ALL INTERCONNECTED DRAINAGE PIPES AND DRAINAGE STRUCTURES ALONG SW 63rd STREET.
 - 4) ALL PROPOSED CATCH BASINS INSTALLED IN GRASS AREAS SHALL HAVE A 12" CONCRETE APRON.
 - 5) PROPOSED SWALES SHALL BE SODDED UPON COMPLETION OF CONTOURING.



MATCH LINE SEE ABOVE

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:

Craven • Thompson and Associates, Inc.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS NO. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. C000114

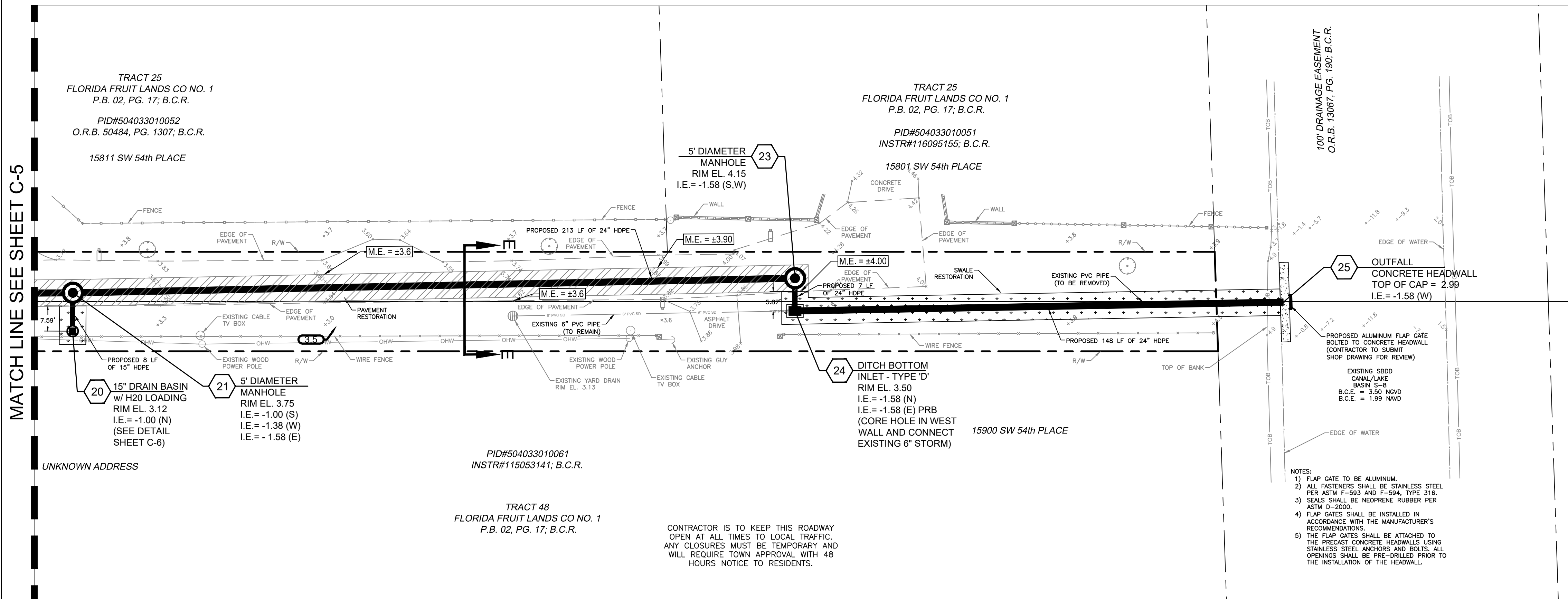
SW 54th PLACE DRAINAGE SECTION 33, TOWNSHIP 50, RANGE 40 BROWARD COUNTY, FLORIDA

PAVING, GRADING, & DRAINAGE PLAN
PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

PROJECT NO.	SHEET NAME
22-0067-001-01	C-5
	SHEET 5 OF 11

Glen Harrelson, P.E.
Florida P.E. No. 62939
June 27, 2023

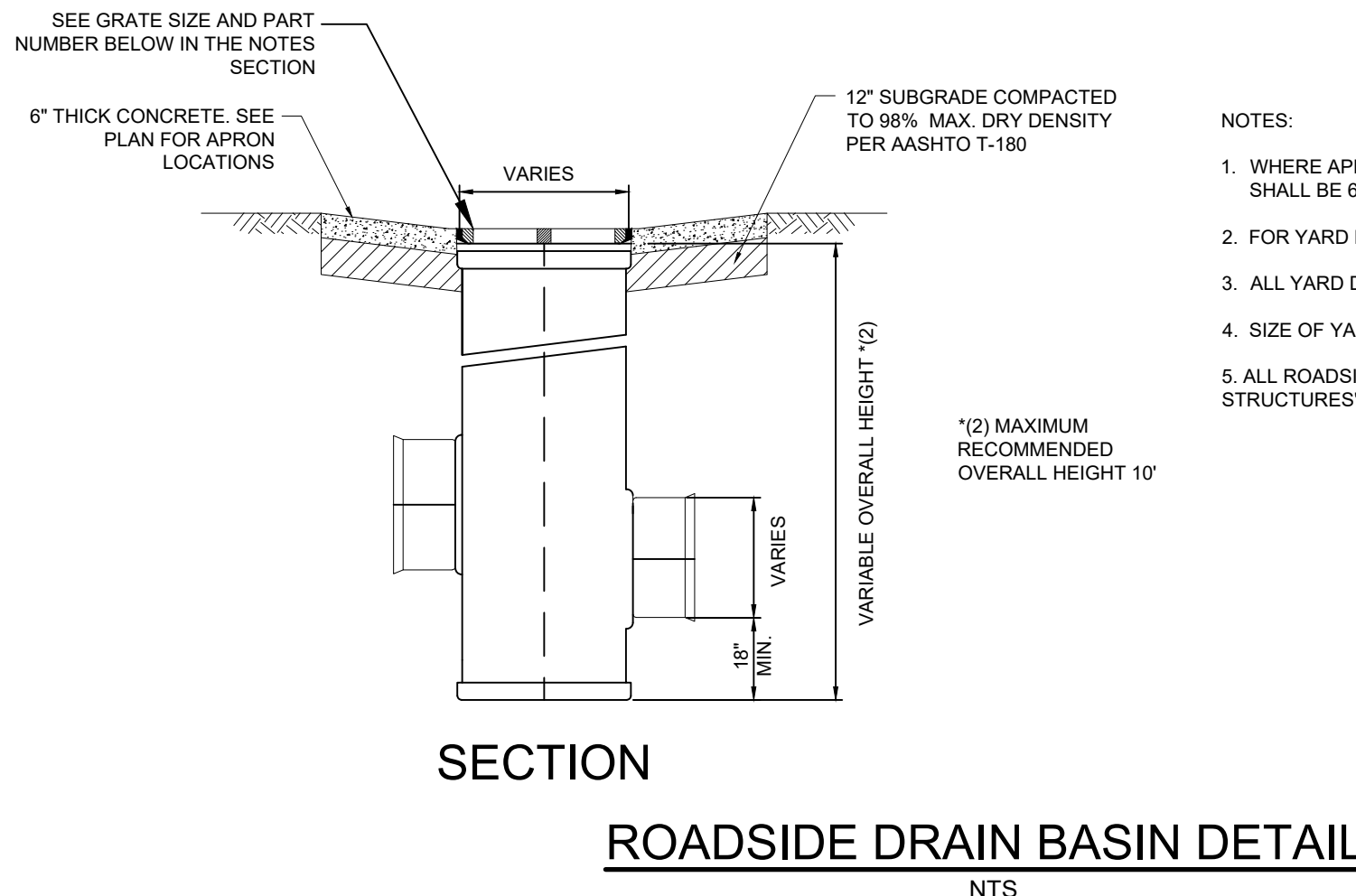
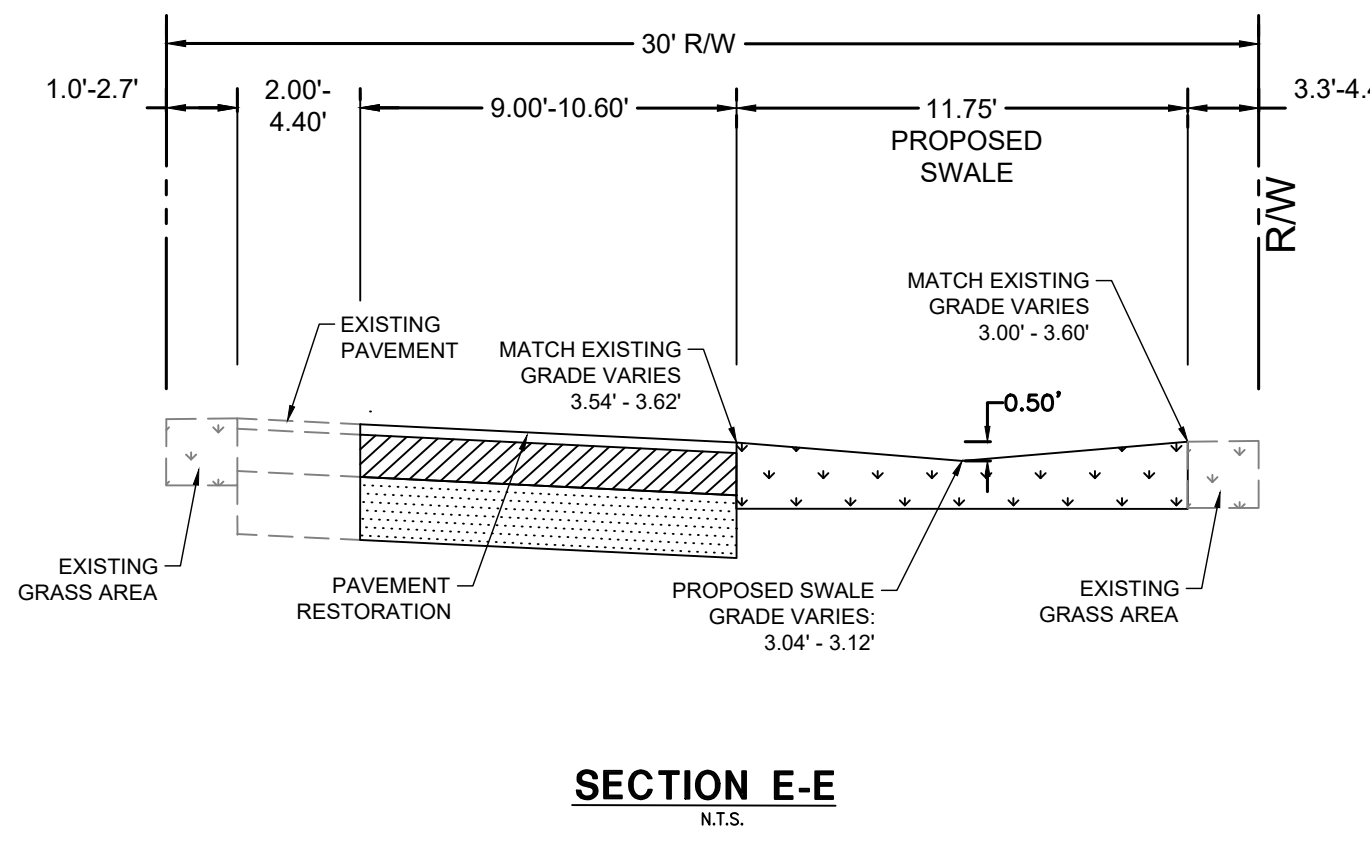
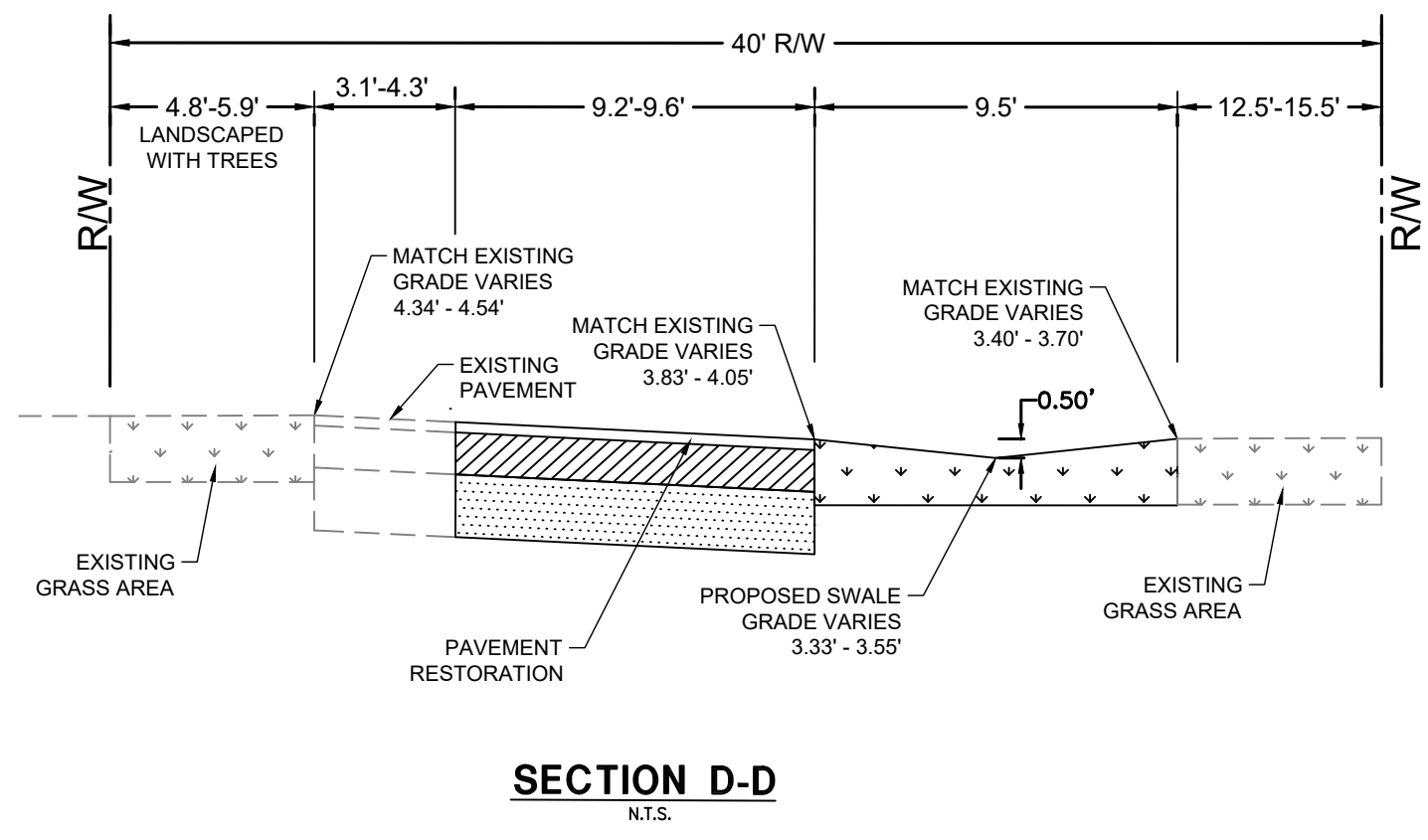
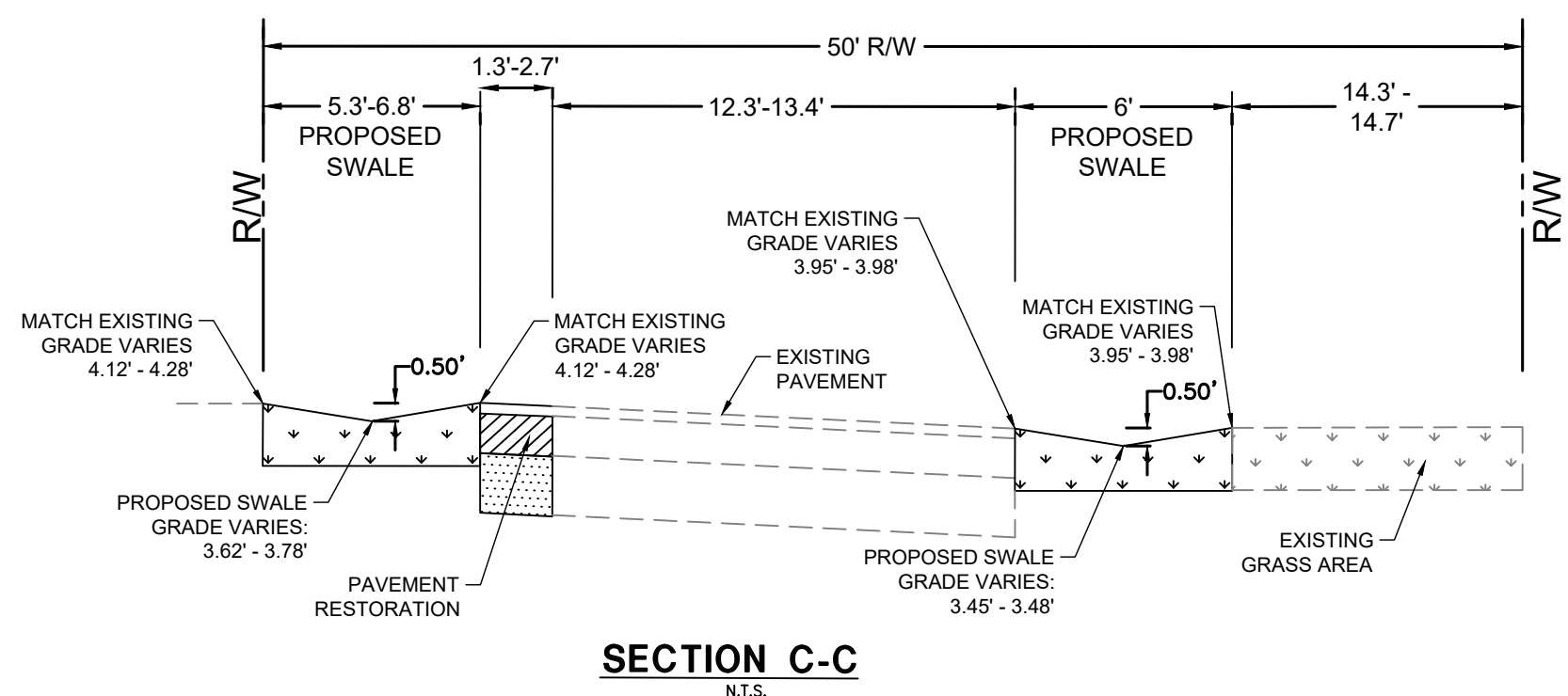
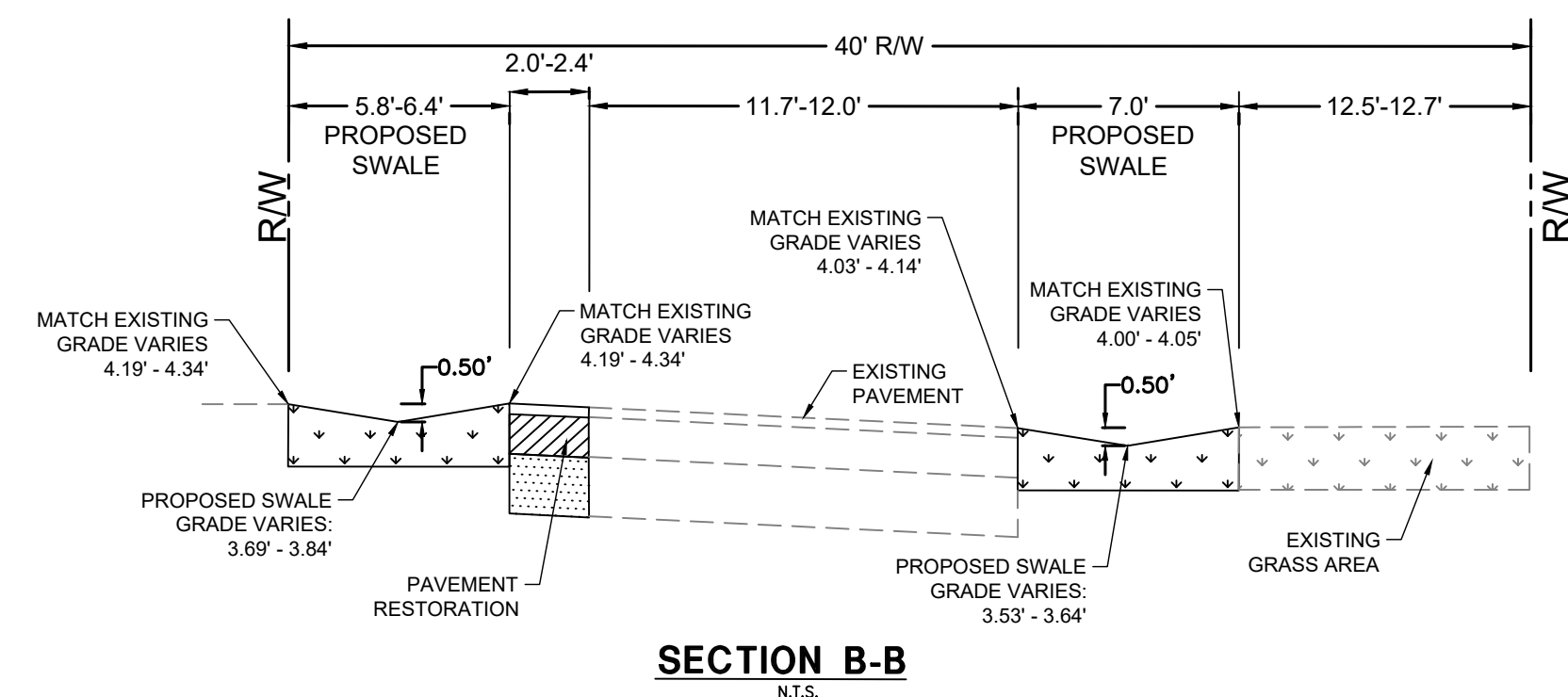
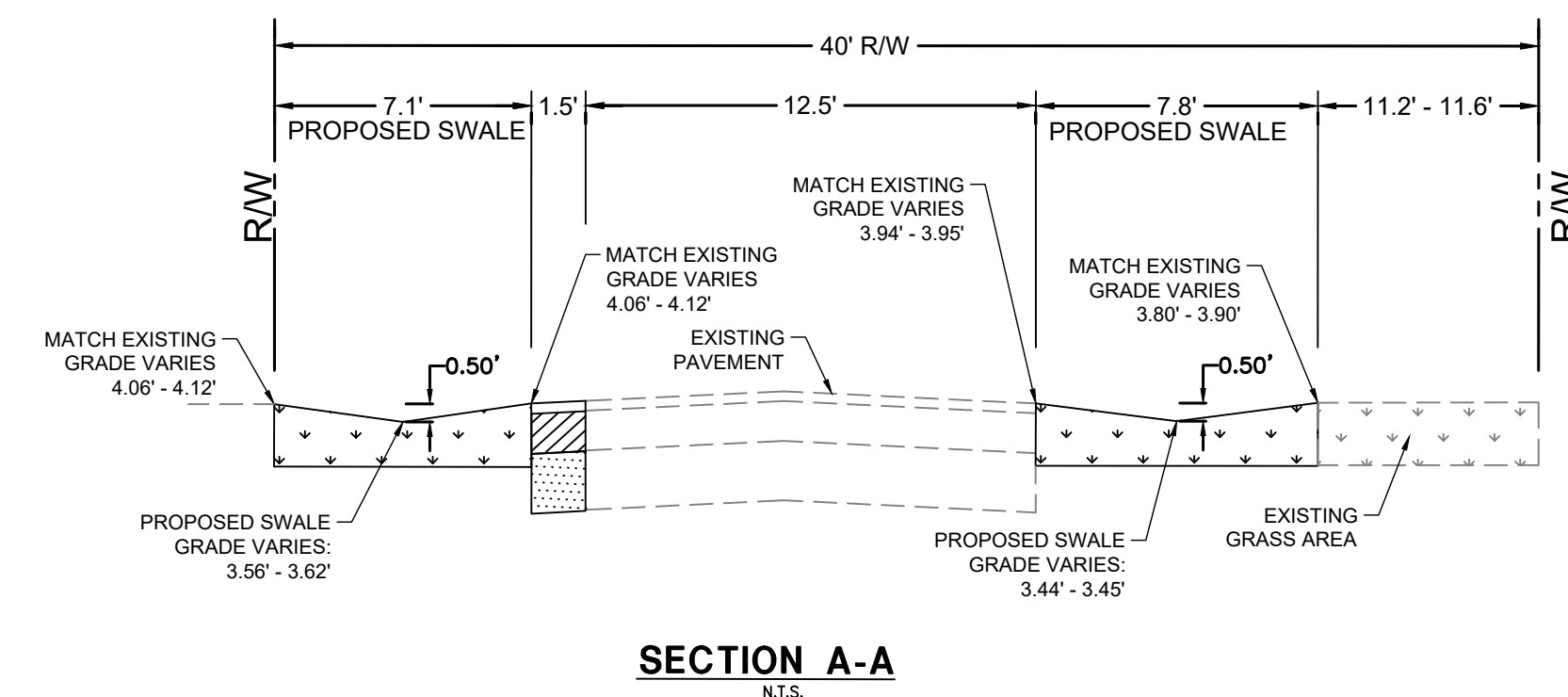
R:\Engineering\2022\22-067 SW 54th Place Drainage\Drawings\22-067-001-01 PGD.dwg [C-6] Jun 27, 2023 4:09pm GHARRELSON



LEGEND

	PROP. PAVEMENT TO BE RESTORED		P-5	PROPOSED PIPE
	SWALE AREA TO BE RESTORED			PROPOSED STORM SEWER
	DRAINAGE STRUCTURE NUMBER			PROPOSED EXFILTRATION TRENCH
CB-6/Ø	DRAINAGE STRUCTURE TYPE			PROPOSED ASPHALT PAVEMENT
R.E.=	RIM ELEVATION			PROPOSED CONCRETE PAVEMENT/SIDEWALK
G.E.=	GRATE ELEVATION			PROPOSED PAVERS
I.E.=	INVERT ELEVATION			SOD
	PROPOSED DRAINAGE MANHOLE			MILL AND OVERLAY
	PROPOSED DRAINAGE CATCH BASIN			
	PROPOSED DRAINAGE WELL			
	DRAINAGE FLOW DIRECTION			
	PROPOSED PAVEMENT ELEVATION			
	PROPOSED CONCRETE ELEVATION			

- NOTES:**
- CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN WORKING UNDER AND AROUND EXISTING OVERHEAD ELECTRIC LINES. CONTRACTOR SHALL NOTIFY AND COORDINATE WITH FPL ON ANY SAFETY OR OTHER ISSUES REGARDING OVERHEAD POWER LINES.
 - CONTRACTOR SHALL COORDINATE WITH FPL AS NECESSARY, TO SECURE ANY EXISTING POWER POLES IN THE VICINITY OF THE PROPOSED CONSTRUCTION WORK. THE COST TO SECURE ANY EXISTING POWER POLES SHALL BE INCLUDED IN THE LUMP PRICE FOR THE PROJECT.
 - UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL CLEAN ALL INTERCONNECTED DRAINAGE PIPES AND DRAINAGE STRUCTURES ALONG SW 63RD STREET.
 - ALL PROPOSED CATCH BASINS INSTALLED IN GRASS AREAS SHALL HAVE A 12" CONCRETE APRON.
 - PROPOSED SWALES SHALL BE SODDED UPON COMPLETION OF CONTOURING.



- NOTES:**
- WHERE APRONS ARE SPECIFIED ON PLANS, THE APRON AROUND THE YARD DRAINS SHALL BE 6" THICK CONCRETE ON COMPACTED SUBGRADE.
 - FOR YARD DRAINS, CONSTRUCT 12" WIDE (MIN.) APRON ON ALL (4) SIDES.
 - ALL YARD DRAINS SHALL BE MANUFACTURED BY NYLOPLAST OR APPROVED EQUAL.
 - SIZE OF YARD DRAINS VARY. SEE PLANS FOR DIAMETER OF YARD DRAIN.
 - ALL ROADSIDE BASINS SHOWN SHALL BE ADS NYLOPLAST "ROAD & HIGHWAY STRUCTURES" OR APPROVED EQUAL AND SHALL SUPPORT H20 LOADING.
- GRATE SIZES & PART NUMBERS:**
 8" - 7001-110-019 (DROP IN GRATE)
 10" - 7001-110-020 (DROP IN GRATE)
 12" - 7001-110-021 (DROP IN GRATE)
 15" - 7001-110-073 (DROP IN GRATE)
 18" - 7001-110-074 (DROP IN GRATE)
 24" - 7001-110-075 (DROP IN GRATE)

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:

CRAVEN • THOMPSON AND ASSOCIATES, INC.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS NO. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. C000114

SW 54th PLACE DRAINAGE
SECTION 33, TOWNSHIP 50, RANGE 40
BROWARD COUNTY, FLORIDA

PAVING, GRADING, & DRAINAGE PLAN
PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

PROJECT NO. 22-0067-001-01	SHEET NAME C-6
SHEET 6 OF 11	

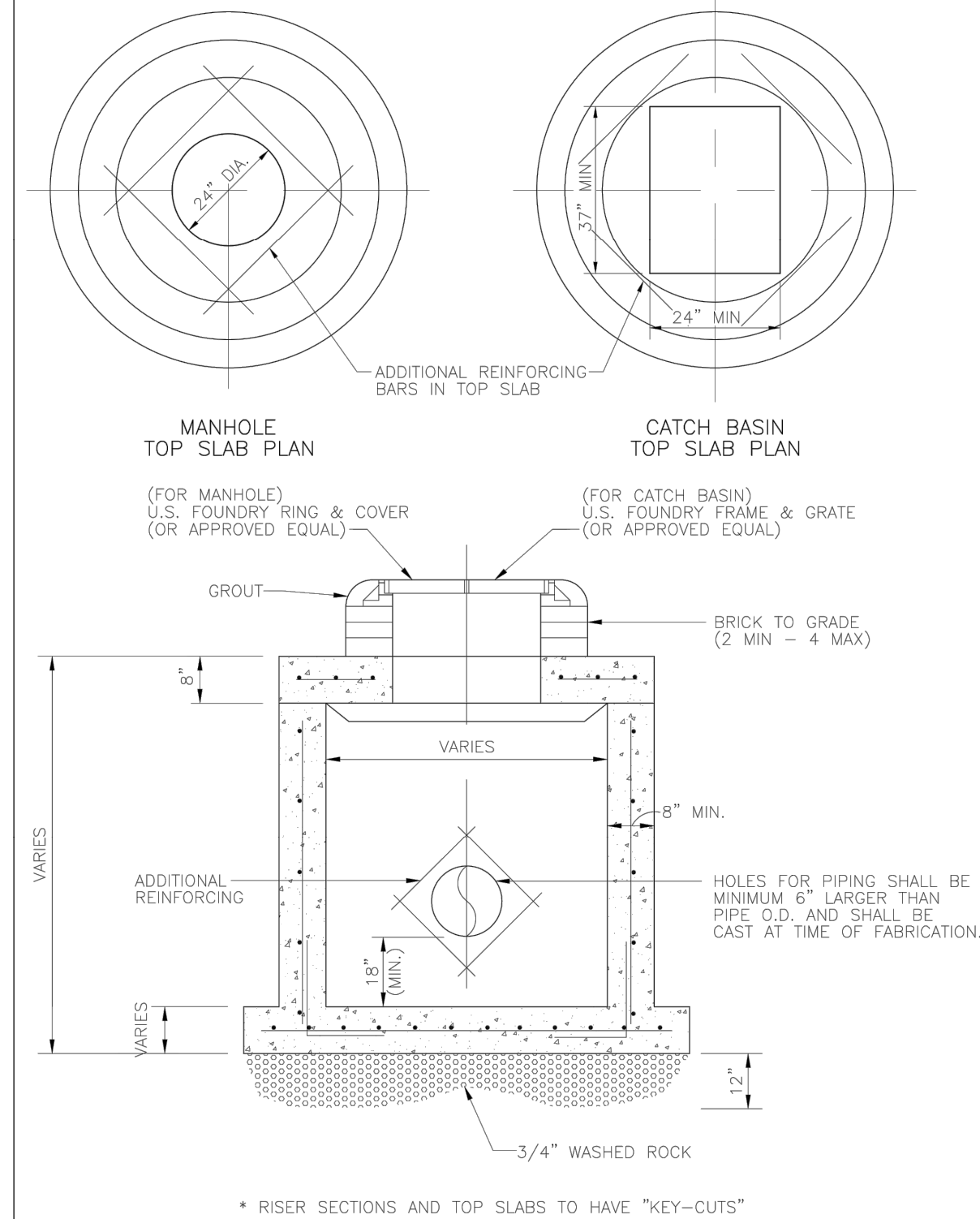
Glen Harrelson, P.E.
Florida P.E. No. 62939
June 27, 2023

THE FOLLOWING GENERAL NOTES ARE REQUIRED BY THE SOUTH BROWARD DRAINAGE DISTRICT (SBDD). THEY ARE NOT MEANT TO BE ALL INCLUSIVE. IT IS THE ENGINEER'S RESPONSIBILITY TO ADD ANY NOTES WHICH WILL INFORM THE OWNER AND THE CONTRACTOR OF ANY ADDITIONAL REQUIREMENTS OF SBDD.

- 1 THE CONTRACTOR SHALL CONTACT SBDD 48 HOURS OR TWO (2) WORKING DAYS PRIOR TO ANY REQUIRED INSPECTION. TO SCHEDULE INSPECTIONS, PLEASE CALL SBDD AT (954)680-3337. SBDD'S WORKING HOURS ARE FROM 8:00 AM TO 4:30 PM, MONDAY THROUGH FRIDAY EXCEPT HOLIDAYS.
- 2 ANY REVISIONS TO PLANS PERMITTED BY SBDD MUST BE APPROVED BY THE DISTRICT ENGINEER PRIOR TO CONSTRUCTION.
- 3 A PRECONSTRUCTION MEETING SHALL BE SCHEDULED AND HELD AT LEAST FIVE (5) DAYS PRIOR TO BEGINNING CONSTRUCTION.
- 4 A SET OF SHOP DRAWINGS SHALL BE SUBMITTED TO SBDD AFTER APPROVAL BY THE ENGINEER OF RECORD, PRIOR TO BEGINNING CONSTRUCTION.
- 5 DURING CONSTRUCTION, SBDD PERSONNEL WILL INSPECT THE FOLLOWING:
 - .. INSTALLATION OF ALL UNDERGROUND DRAINAGE FACILITIES BEFORE BACKFILLING,
 - .. BACKFILLING OF DRAINAGE TRENCHES,
 - .. SHAPING OF CANAL AND LAKE BANKS FROM THE DEEP CUT TO THE UPLAND EASEMENT LINE OR AS REQUIRED BY SBDD,
 - AND ANY OTHER DRAINAGE RELATED CONSTRUCTION WORK.
 RE-INSPECTIONS AND EXTRAORDINARY INSPECTIONS WILL BE SUBJECT TO ADDITIONAL FEE CHARGES BY SBDD.
- 6 THE CONTRACTOR CONSTRUCTING OR EXCAVATING LAKES OR OTHER WATER BODIES SHALL EXERCISE EXTREME CAUTION TO ENSURE THAT THE SIDE SLOPES AND DEEP CUT LINES ARE CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PLANS FOR THE DEVELOPMENT. THE CONTRACTOR OR OWNER SHALL PERIODICALLY, OR AS REQUIRED BY SBDD, OBTAIN A SURVEY, FROM A FLORIDA REGISTERED SURVEYOR OF THE LOCATION OF THE DEEP CUT LINES PRIOR TO FORMING THE SIDE SLOPES. THIS SURVEY SHALL BE PERFORMED PRIOR TO THE OWNER/CONTRACTOR BEGINNING CONSTRUCTION OF ANY BUILDING PADS ADJACENT TO THE WATER BODY. IN THE EVENT THAT THE CONTRACTOR OVER DIGS THE WATER BODY, THE OWNER/CONTRACTOR SHALL SUBMIT TO SBDD ITS SOLUTION TO CORRECT THE OVER DIGGING. ANY SUGGESTED REMEDY OR CORRECTION MUST BE APPROVED BY SBDD BEFORE THE CONTRACTOR BEGINS THE PROPOSED CORRECTION/REMEDY.
- 7 PAVING AND DRAINAGE "AS-BUILT" PLANS CERTIFIED BY THE ENGINEER OF RECORD AND APPROVED BY THE DISTRICT'S ENGINEER SHALL BE REQUIRED BEFORE THE RELEASE OF THE BOND OR LETTER OF CREDIT. "AS-BUILTS" SHALL BE PROVIDED AS AN OVERLAY OF THE APPROVED CONSTRUCTION DRAWINGS AND AT THE SAME SCALE AS ORIGINALLY SUBMITTED. "AS-BUILT" SUBMITTALS SHALL CONFORM TO THE REQUIREMENTS OF SBDD'S CRITERIA MANUAL. "AS-BUILTS" MUST ALSO BE PROVIDED IN ELECTRONIC FORMAT.
- 8 "AS-BUILT" DRAWINGS OF WATER BODIES SHALL INCLUDE THE DATA REQUIRED UNDER EXHIBIT 39 OF SBDD'S CRITERIA MANUAL. THE "AS-BUILT" CROSS SECTIONS SHALL BE PROVIDED AT NOT MORE THAN 100 FOOT INTERVALS AND AT ALL OUTFALL PIPES CONSTRUCTED WITHOUT HEADWALLS.
- 9 SBDD WILL NOT COMPLETE THE FINAL INSPECTION UNTIL RECEIPT OF THE "AS-BUILT" PACKAGE WHICH MUST INCLUDE THE ENGINEER'S CERTIFICATION AND TEST RESULTS FOR STABILIZATION OF LAKE/CANAL MAINTENANCE EASEMENTS, ARE RECEIVED.

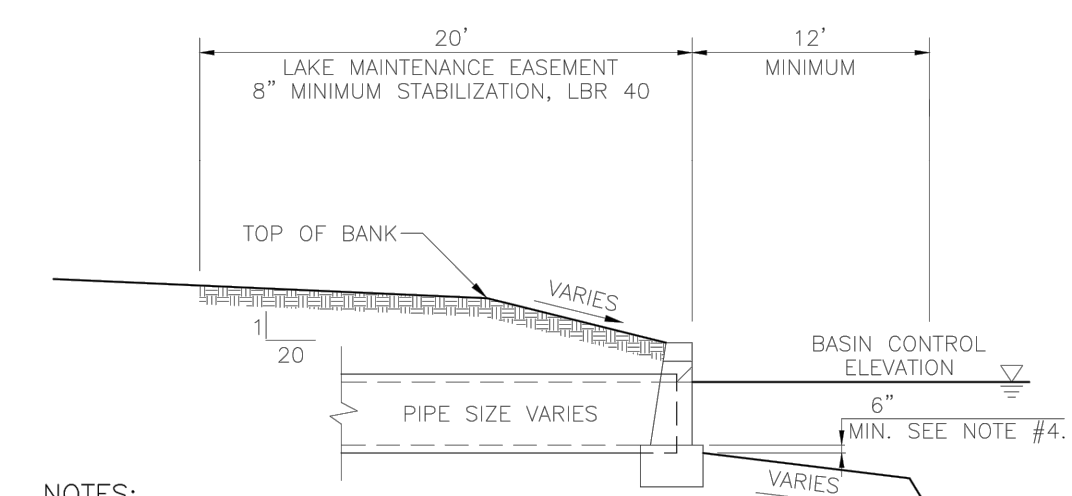
SOUTH BROWARD DRAINAGE DISTRICT
DESIGN CRITERIA MANUAL
GENERAL NOTES

EXHIBIT
17



SOUTH BROWARD DRAINAGE DISTRICT
DESIGN CRITERIA MANUAL
PRECAST DRAINAGE
STRUCTURE DETAIL

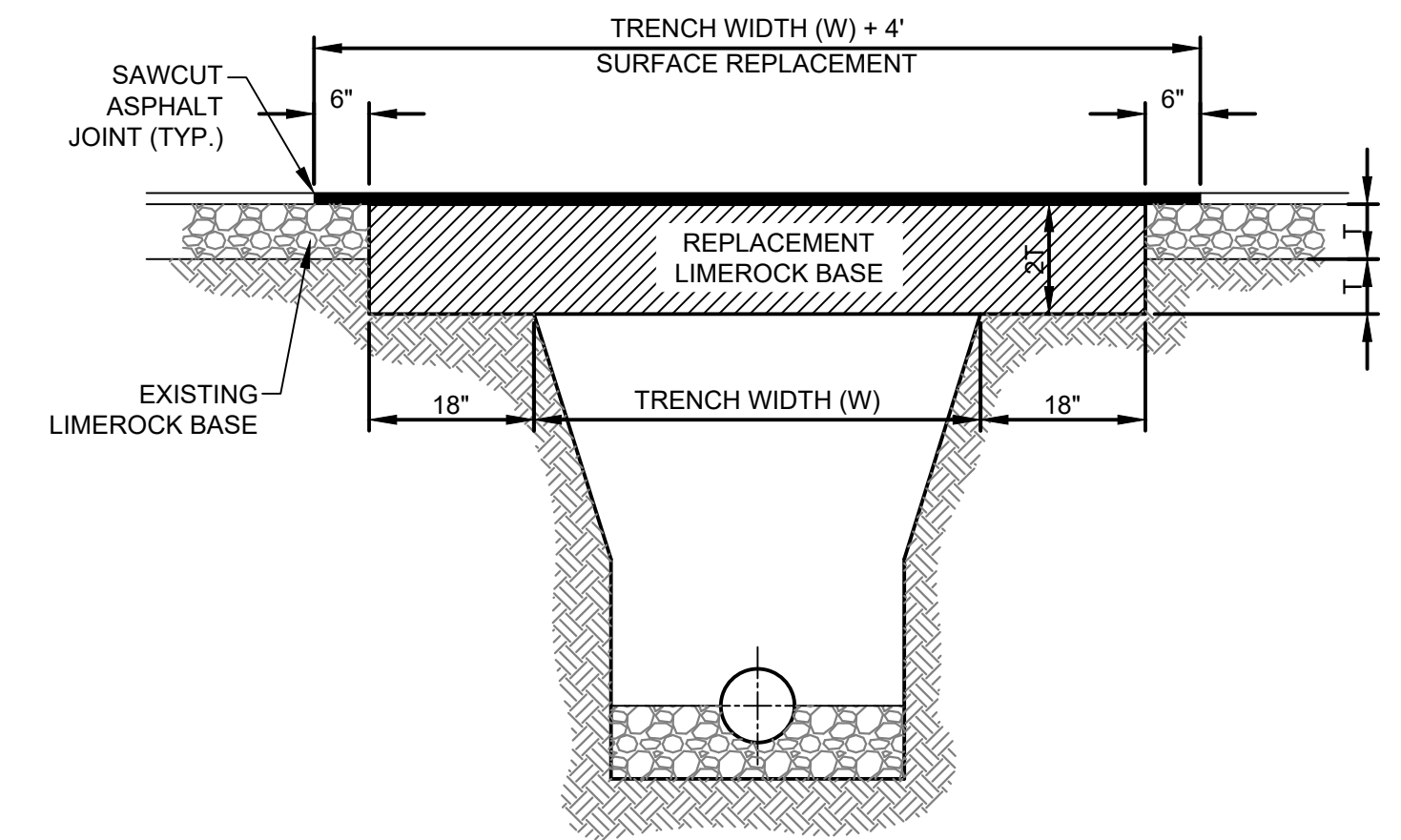
EXHIBIT
23



- NOTES:
1. TOP OF CAP TO BE 1' ABOVE THE BASIN CONTROL ELEVATION FOR LAKES AND 2' ABOVE BASIN CONTROL ELEVATION FOR CANALS, UNLESS OTHERWISE APPROVED BY THE DISTRICT.
 2. HEADWALLS ARE REQUIRED FOR ALL LAKE AND CANAL INTERCONNECTS.
 3. CONCRETE AND RIP-RAP ENDWALLS ARE ACCEPTED PER FDOT INDEX 250-255 AND INDEX 258 WITH EXCEPTIONS AS NOTED IN SECTION 3.7.7 OF THE SBDD DESIGN CRITERIA MANUAL.
 4. CHANNEL IN FRONT OF PIPE TO BE MIN 6" BELOW THE INVERT OF THE PIPE AND AT LEAST 1 1/2 TIMES THE DIA. OF THE PIPE TO THE DEEP CUT LINE AND CENTERED ON THE PIPE.
 5. FACE OF HEADWALL TO BE LOCATED AT DESIGN EDGE OF WATER.

SOUTH BROWARD DRAINAGE DISTRICT
DESIGN CRITERIA MANUAL
OUTFALL DETAIL
WITH HEADWALL

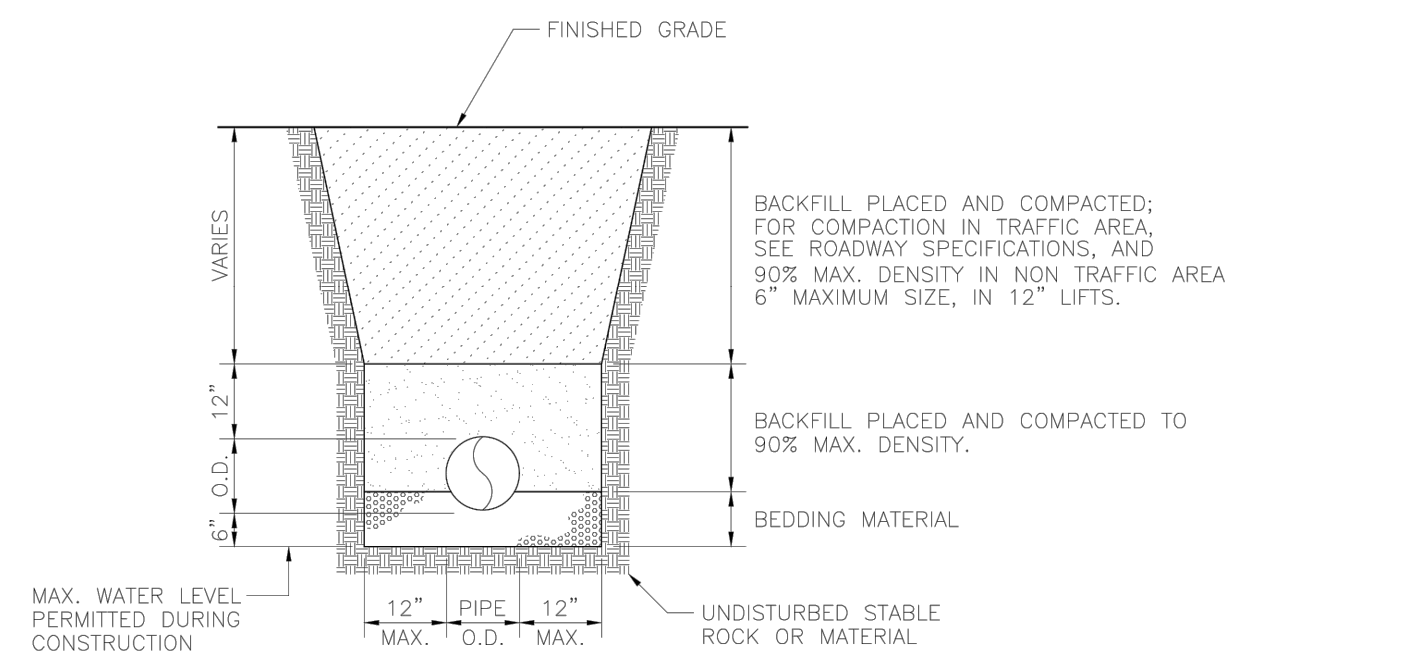
EXHIBIT
21



- NOTES:
1. REPLACED BASE MATERIAL OVER TRENCH SHALL BE TWICE THE THICKNESS OF THE ORIGINAL BASE, MINIMUM 8", MAXIMUM 18".
 2. BASE MATERIAL SHALL BE PLACED IN 6" MAXIMUM (LOOSE MEASUREMENT) LAYERS AND EACH LAYER THOROUGHLY ROLLED OR TAMPED TO 98% OF MAXIMUM DENSITY, PER AASHTO T-180.
 3. SUBGRADE MATERIAL SHALL BE GRANULAR AND ANGULAR AND SHALL HAVE A MINIMUM LBR OF 40.
 4. ASPHALT CONCRETE PAVEMENT JOINTS SHALL BE MECHANICALLY SAWED PARALLEL TO OR PERPENDICULAR TO THE ROADWAY
 5. SURFACE TREATED PAVEMENT JOINTS SHALL BE LAPPED.
 6. SURFACE MATERIAL SHALL BE CONSISTENT WITH THE SURROUNDING SURFACE (MINIMUM 1" THICKNESS)
 7. BASE MATERIAL SHALL HAVE A MINIMUM LBR OF 100 AND A MINIMUM CARBONATE CONTENT OF 70% (60% FOR LOCAL STREETS)
 8. IF THE TRENCH IS FILLED TEMPORARILY, IT SHALL BE COVERED WITH A 2" ASPHALTIC CONCRETE PATCH TO KEEP THE FILL MATERIAL FROM RAVELING UNTIL REPLACED WITH A PERMANENT PATCH.

PAVEMENT RESTORATION DETAIL

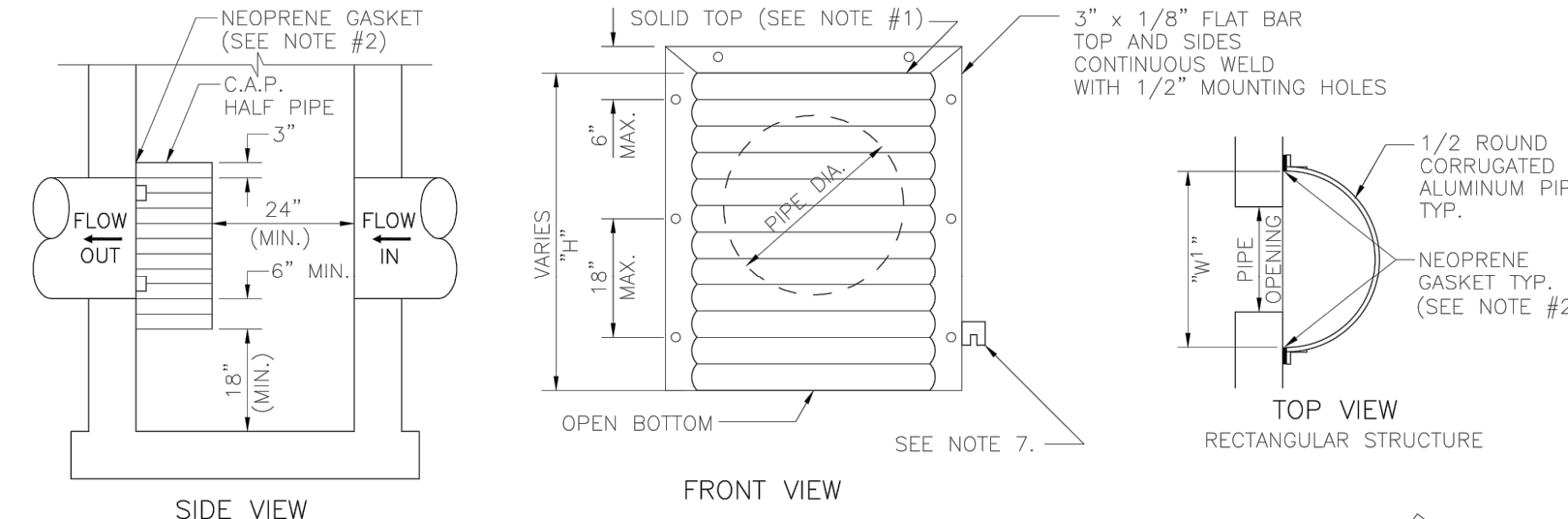
SCALE: N.T.S.



- NOTES:
1. WHERE SOIL CONDITION CANNOT BE MAINTAINED AS SHOWN ABOVE, PROVIDE APPROVED MEANS OF CONSTRUCTION.
 2. WHERE REQUIRED SHEETING AND SHORING SHALL BE IN ACCORDANCE WITH THE LOCAL GOVERNMENTAL AGENCY.
 3. MUCK OR OTHER UNSUITABLE MATERIAL SHALL BE COMPLETELY REMOVED.
 4. WHEN THE PIPE IS LAID IN THE PREPARED TRENCH, TRUE TO LINE AND GRADE, THE PIPE BARREL SHALL RECEIVE CONTINUOUS UNIFORM SUPPORT. WHERE NECESSARY, COURSE SAND, PEA ROCK OR 3/4" LIMESTONE GRAVEL SHALL BE USED TO PROVIDE UNIFORM BEDDING.
 5. ALL PIPE JOINTS ARE REQUIRED TO BE WRAPPED WITH MIRAFI FILTER FABRIC.
 6. BACKFILL MATERIAL SHALL BE NON-COHESIVE AND NON-PLASTIC SOIL THAT IS FREE OF ALL DEBRIS, LUMPS, WOOD BROKEN PAVING OR ANY ORGANIC OR UNSUITABLE MATERIAL. BACKFILL MATERIAL PLACED WITHIN 12" OF THE PIPE SHALL CONTAIN NO ROCKS OR STONES LARGER THAN 3-1/2" INCHES IN DIAMETER. NO ROCKS OR STONES LARGER THAN 6" IN DIAMETER WILL BE PERMITTED IN THE REMAINING BACKFILL UNLESS OTHERWISE SPECIFIED.
 7. TRENCH BACKFILL SHALL BE COMPACTED TO NOT LESS THAN 90 PERCENT OF THE MAXIMUM DRY DENSITY DETERMINED BY AASHTO T-180. BACKFILL AND COMPACTION SHALL BE IN ACCORDANCE TO THE STANDARD ENGINEERING DESIGN REQUIRED BY THE LOCAL GOVERNMENTAL AGENCY.

SOUTH BROWARD DRAINAGE DISTRICT
DESIGN CRITERIA MANUAL
TYPICAL PIPE TRENCH AND BEDDING DETAIL

EXHIBIT
24



- NOTES:
1. ALUMINUM SHEET OF SAME THICKNESS (GAUGE) AS PIPE SHALL BE WELDED TO CLOSE OPENING AT THE TOP.
 2. NEOPRENE ADHESIVE BACKED GASKET, OR APPROVED EQUAL (1" x 3") SHALL BE INSTALLED ON THE SIDES AND TOP OF ALL BAFFLES.
 3. POLLUTION RETARDANT BAFFLE TO BE FASTENED IN PLACE WITH 3/8"x4" STAINLESS STEEL "RED HEADS", OR APPROVED EQUAL.
 4. ALL EXFILTRATION TRENCHES SHALL HAVE A POLLUTION RETARDANT BAFFLE AT EACH CONNECTION POINT TO A STRUCTURE (SEE EXFILTRATION TRENCH DETAIL). THE BOTTOM OF THE BAFFLE SHALL BE A MIN. OF 12" BELOW C.I.W.E.
 5. FIBERGLASS BAFFLES ARE NOT PERMITTED.
 6. MOUNTING BRACKETS MAY BE ADDED TO FLAT BARS TO EASE INSTALLATION IN ROUND STRUCTURES. SPACING TO MATCH HOLES IN FLAT BARS.
 7. FOR POLLUTION RETARDANT BASINS THE BOTTOM ELEVATION OF THE BAFFLE MUST BE A MINIMUM OF 2' BELOW THE CONTROL WATER ELEVATION.

SOUTH BROWARD DRAINAGE DISTRICT
DESIGN CRITERIA MANUAL
POLLUTION RETARDANT BAFFLE DETAIL

EXHIBIT
28

R:\Engineering\2022\22-0067 SW 54th Place Drainage Drawings\22-0067-001 P00.dwg [C-7] Jun 27, 2023 4:10pm GHARRELSON

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:	DATE:	01/11/2022	DRAWN BY:	KDP
						SCALE:	N/A	CHECKED BY:	PJG
						DESIGN BY:	KDP	APPROVED BY:	

Craven • Thompson and Associates, Inc.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS NO. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. C000114

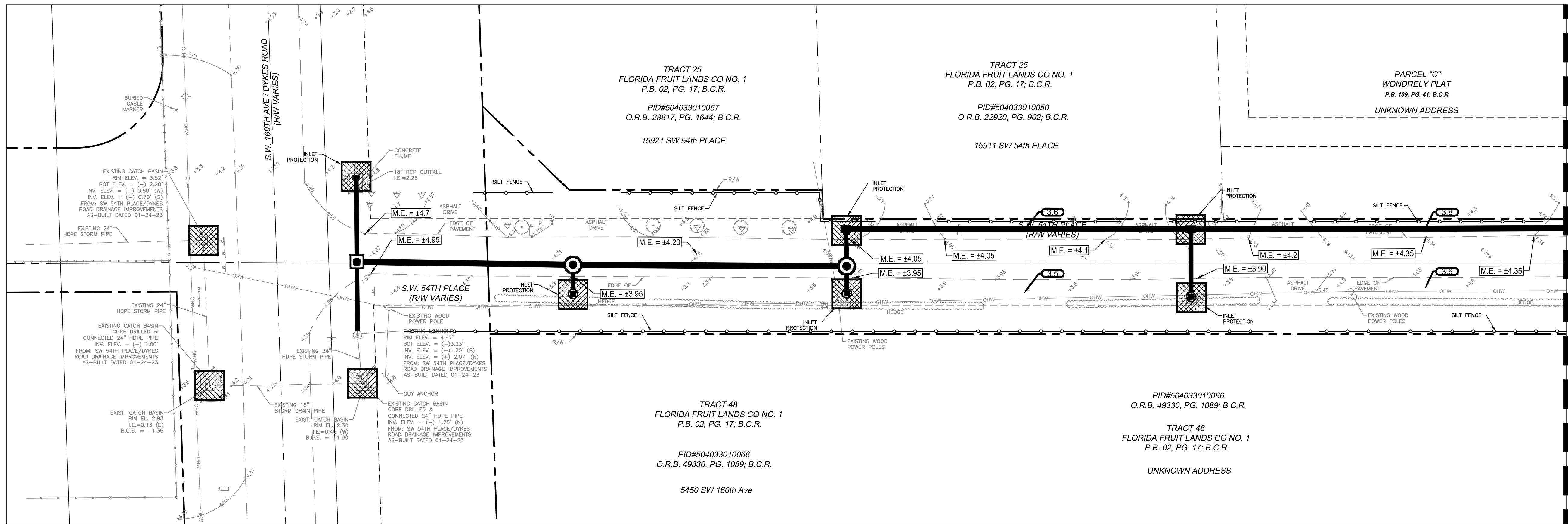
**SW 54th PLACE DRAINAGE
SECTION 33, TOWNSHIP 50, RANGE 40
BROWARD COUNTY, FLORIDA**

PAVING, GRADING, & DRAINAGE DETAILS
PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

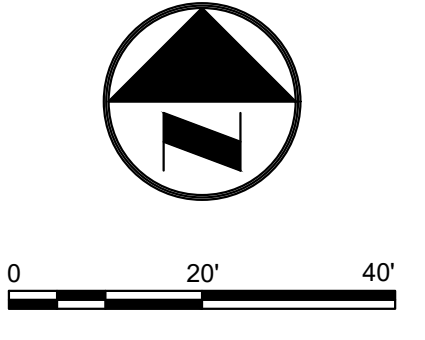
PROJECT NO.	SHEET NAME
22-0067-001-01	C-7
	SHEET 7 OF 11

Glen Harrelson, P.E.
Florida P.E. No. 62939
June 27, 2023

R:\Engineering\2022\22-0067-SW 54th Place Drainage\Drawings\22-0067-001-ERO.dwg [C-8] Jun 27, 2023 4:10pm CHARRELSON

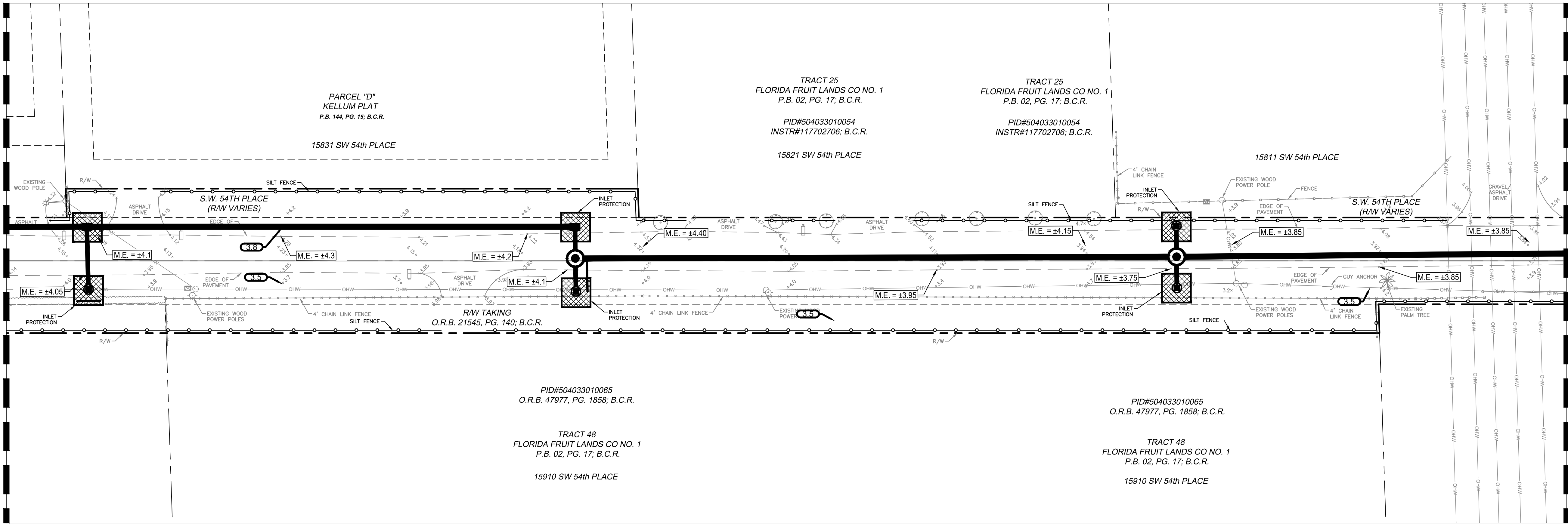


MATCH LINE SEE BELOW



LEGEND

- SILT FENCE
- INLET PROTECTION
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
- FLOATING TURBIDITY BARRIER
- PROPOSED DRAINAGE PIPING



MATCH LINE SEE ABOVE

MATCH LINE SEE SHEET C-9

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:

Craven • Thompson and Associates, Inc.
 ENGINEERS • PLANNERS • SURVEYORS
 3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
 FAX: (954) 739-6409 TEL: (954) 739-6400
 FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS NO. 271
 FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. C000114

SW 54th PLACE DRAINAGE
SECTION 33, TOWNSHIP 50, RANGE 40
BROWARD COUNTY, FLORIDA

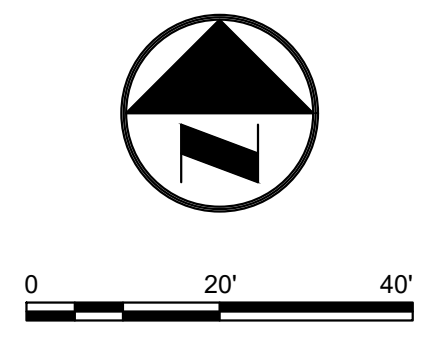
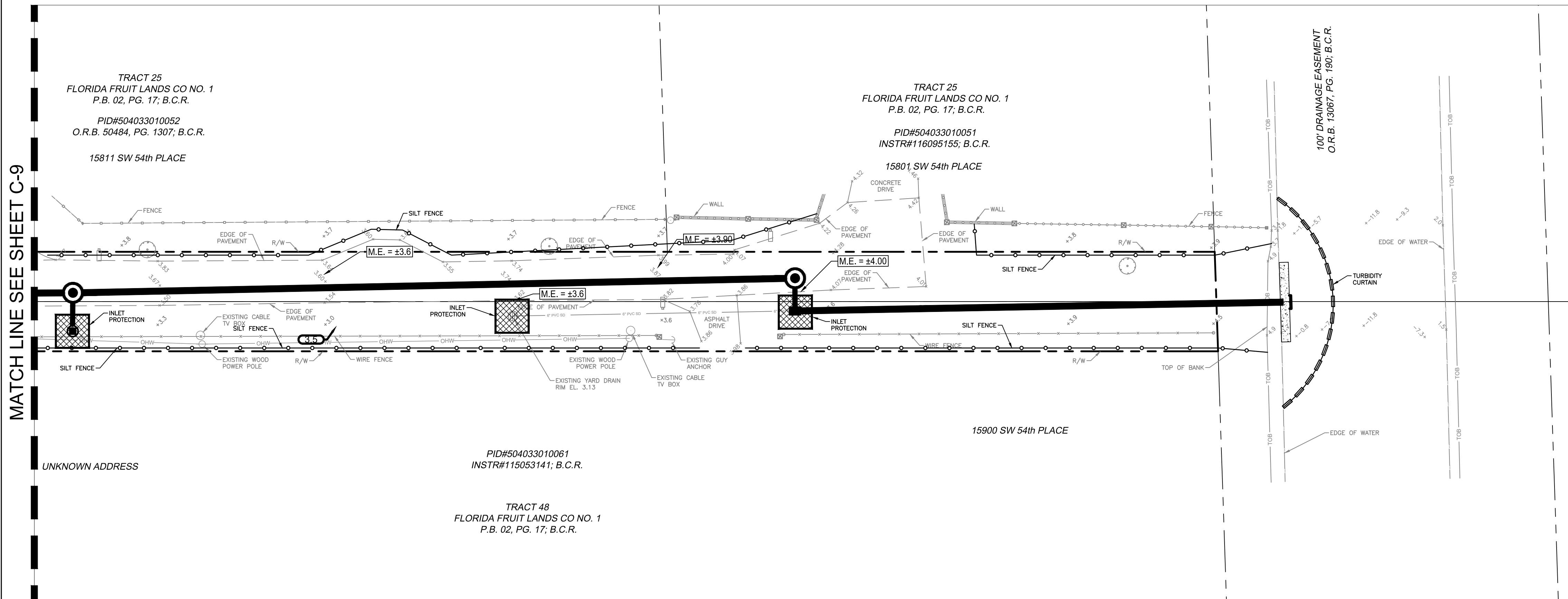
EROSION CONTROL PLAN
 PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

PROJECT NO.
22-0067-001-01

SHEET NAME
C-8
 SHEET **8** OF **11**

Glen Harrelson, P.E.
 Florida P.E. No. 62939
 June 27, 2023

R:\Engineering\2022\22-0067 SW 54th Place Drainage\Drawings\22-0067-001-01 ERO.dwg [C-9] Jun 27, 2023 4:10pm CHARRELSON

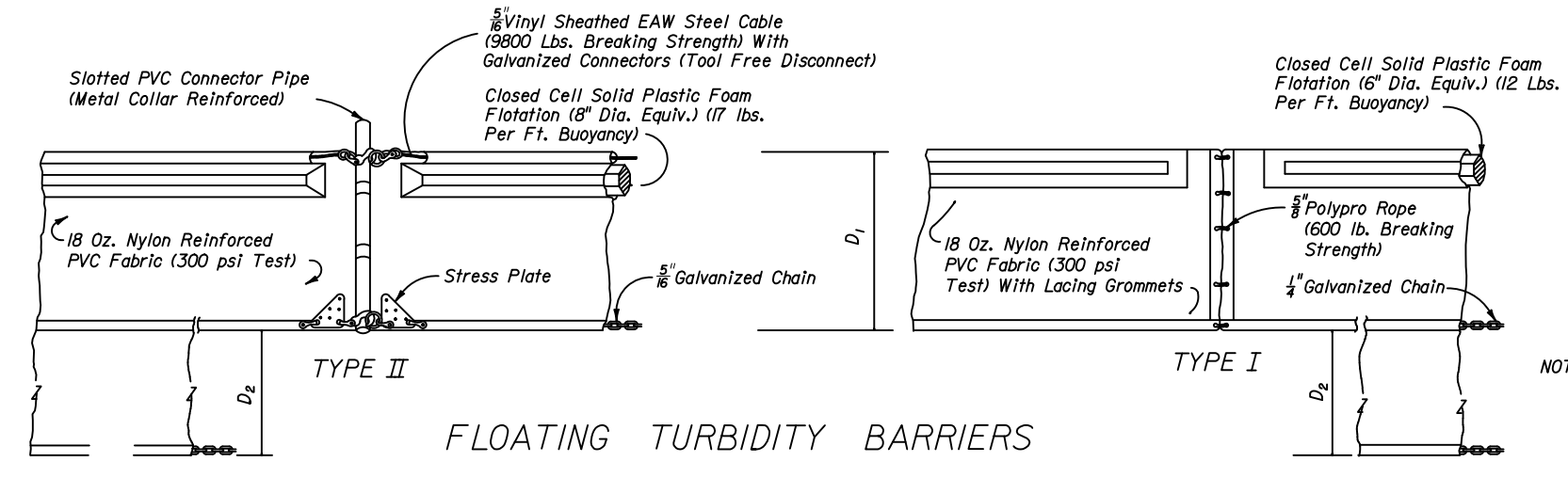
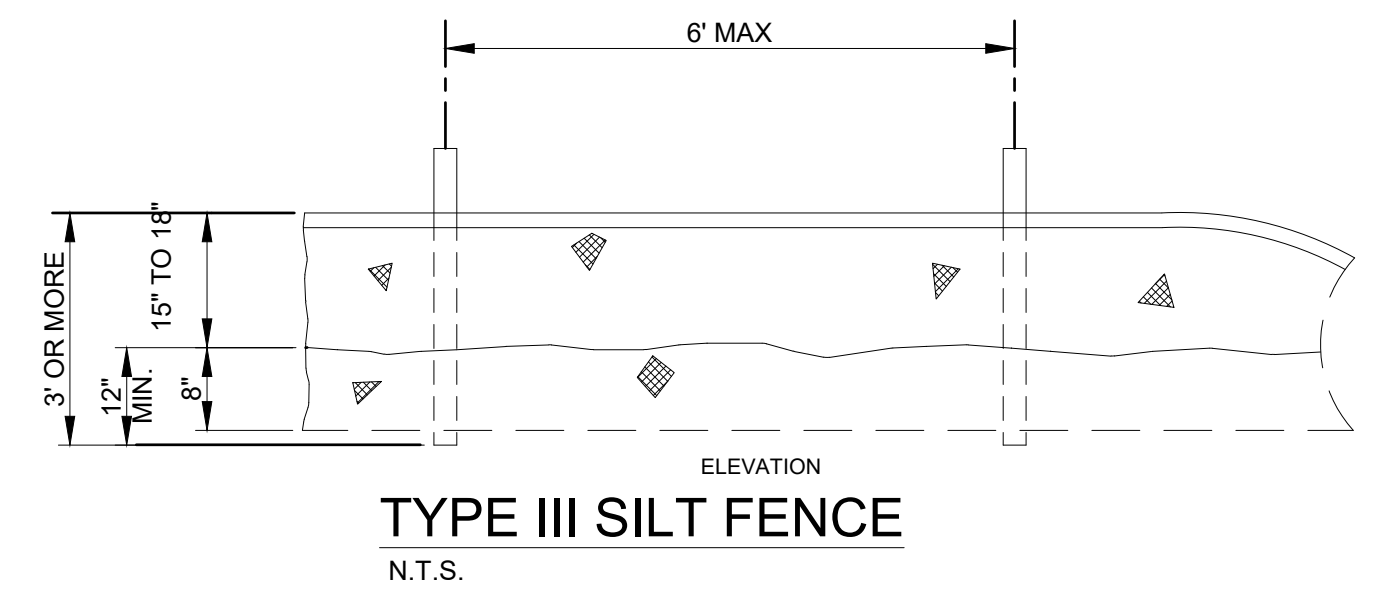
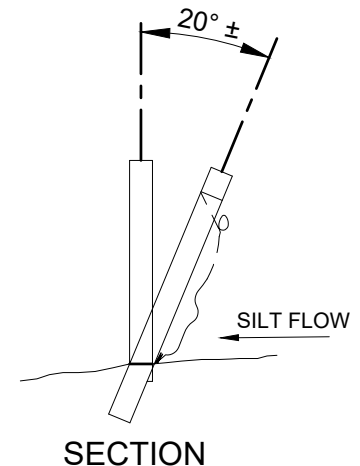


LEGEND

- SILT FENCE
- INLET PROTECTION
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
- FLOATING TURBIDITY BARRIER
- PROPOSED DRAINAGE PIPING

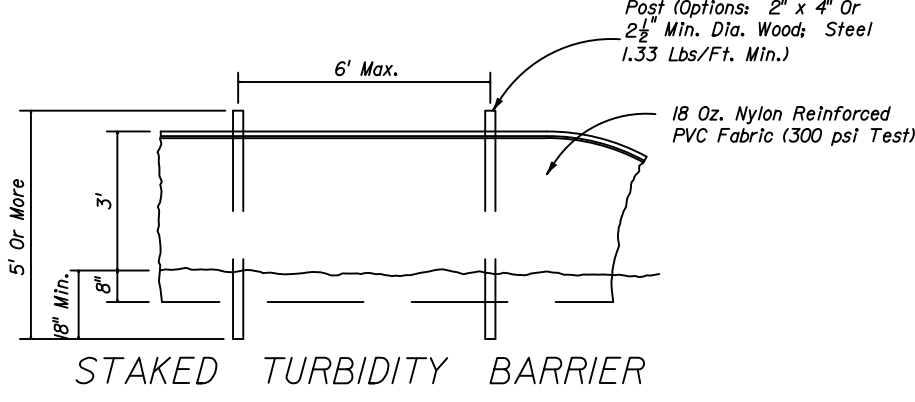
EROSION CONTROL NOTES:

1. CONTRACTOR TO EMPLOY BEST MANAGEMENT PRACTICES THROUGHOUT CONSTRUCTION IN ORDER TO ENSURE POLLUTION PREVENTION. CONTRACTOR TO COMPLY WITH ALL LOCAL, STATE AND OTHER GOVERNMENTAL ENVIRONMENTAL REGULATIONS THROUGHOUT CONSTRUCTION.
2. DURING CONSTRUCTION ALL CATCH BASINS TO BE EQUIPPED WITH FILTER FABRIC AND HAY BALES OVER GRATES PER DETAILS.
3. SILT FENCES SHALL BE INSTALLED AS NECESSARY TO CONTROL OR PREVENT DISCHARGE OF SEDIMENT ONTO ADJACENT UNDISTURBED AREAS (FUTURE PHASES), OR OFF-SITE AREAS.
4. ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED WITHIN A REASONABLE PERIOD OF TIME TO ASSURE MINIMUM EROSION OF SOILS.
5. NO LAND CLEARING OR GRADING SHALL BEGIN UNTIL ALL EROSION CONTROL MEASURES HAVE BEEN INSTALLED.
6. ALL EXPOSED AREAS SHALL BE SODDED AS SPECIFIED WITHIN 30 DAYS OF FINAL GRADING.
7. MAINTAIN EROSION CONTROL MEASURES AFTER EACH RAIN AND AT LEAST ONCE A WEEK.
8. THIS PLAN SHALL NOT BE CONSIDERED ALL INCLUSIVE AS THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SOIL SEDIMENT FROM LEAVING THE SITE.
9. CONTRACTOR SHALL COMPLY WITH ALL STATE AND LOCAL ORDINANCES THAT APPLY.
10. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED IF DEEMED NECESSARY BY ON SITE INSPECTION.
11. LAND DISTURBING ACTIVITIES SHALL NOT COMMENCE UNTIL APPROVAL TO DO SO HAS BEEN RECEIVED BY GOVERNING AUTHORITIES.
12. IF INSTALLATION OF STORM DRAINAGE SYSTEM SHOULD BE INTERRUPTED BY WEATHER OR NIGHTFALL, THE PIPE ENDS SHALL BE COVERED WITH FILTER FABRIC.
13. ALL EXISTING STRUCTURES, FENCING, TREES, AND ETC. WITHIN CONSTRUCTION AREA SHALL BE REMOVED AND DISPOSED OF OFF SITE.
14. CONTRACTOR SHALL BE RESPONSIBLE TO TAKE WHATEVER MEANS NECESSARY TO ESTABLISH PERMANENT SOIL STABILIZATION.
15. CONTRACTOR IS TO PROVIDE EROSION CONTROL/SEDIMENTATION BARRIER (HAY BALES OR SILTATION CURTAIN) TO PREVENT SILTATION OF ADJACENT PROPERTY, STREETS, STORM SEWERS AND WATERWAYS. IN ADDITION CONTRACTOR SHALL PLACE STRAW, MULCH OR OTHER SUITABLE MATERIAL ON GROUND IN AREAS WHERE CONSTRUCTION RELATED TRAFFIC IS TO ENTER AND EXIT SITE IF IN THE OPINION OF THE ENGINEER AND/OR LOCAL AUTHORITIES. EXCESSIVE QUANTITIES OF EARTH ARE TRANSPORTED OFF-SITE EITHER BY NATURAL DRAINAGE OR BY VEHICULAR TRAFFIC. THE CONTRACTOR IS TO REMOVE AND CLEAN SAID EARTH TO THE SATISFACTION OF THE ENGINEER AND/OR AUTHORITIES. EROSION CONTROL BARRIER SHALL BE ESTABLISHED AS THE FIRST ITEM OR WORK.
16. TURBIDITY BARRIERS SHALL BE CHECKED AT LEAST ONCE A WEEK TO ENSURE THEIR EFFECTIVENESS. ADDITIONAL TURBIDITY BARRIERS IF DEEMED NECESSARY SHALL BE PROVIDED AT NO ADDITIONAL COST.
17. SITE ACTIVITIES SHALL BE SHUT-DOWN IMMEDIATELY IF THE DOWNSTREAM OR UPSTREAM WATERWAYS ARE DEEMED TO BE AFFECTED DUE TO EARTHWORK ACTIVITIES, OR AT THE COUNTY, CITY'S OR ENGINEER OF RECORDS DISCRETION.
18. SPILL KIT MUST BE PROVIDED ONSITE DURING ENTIRE DURATION OF PROJECT OR UNTIL REMOVAL IS APPROVED BY CITY. SPILL KIT MUST BE APPROPRIATE FOR SCOPE OF WORK AND EQUIPMENT ONSITE.
19. CONCRETE WASHOUT AREAS, SHALL BE CONSTRUCTED SIMILAR TO TEMPORARY GRAVEL CONSTRUCTION ENTRANCES WITH A WIDTH OF 15 TO 20- FEET (CONTRACTOR'S DISCRETION, HE/SHE MAY NEED TO FIT MORE THAN ONE TRUCK AT A TIME) AND A DEPTH OF 20- FEET. SIX INCHES OF AGGREGATE OVER FILTER FABRIC IS REQUIRED ON THE BOTTOM OF THE WASHOUT AREA. THIS AREA SHALL BE SURROUNDED ON THREE SIDES BY A SILT FENCE OR EARTHEN DAM WITH THE BACK END A MINIMUM OF 12-INCHES LOWER TO ALLOW FOR WATER TO POOL AT THE BACK AREA. A SIGN STATING "CONCRETE WASHOUT AREA SHALL BE PLACED AT THE SITE.
20. CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES ON THE EXISTING DRAINAGE STRUCTURES PRIOR TO COMMENCEMENT OF DEMOLITION WORK.



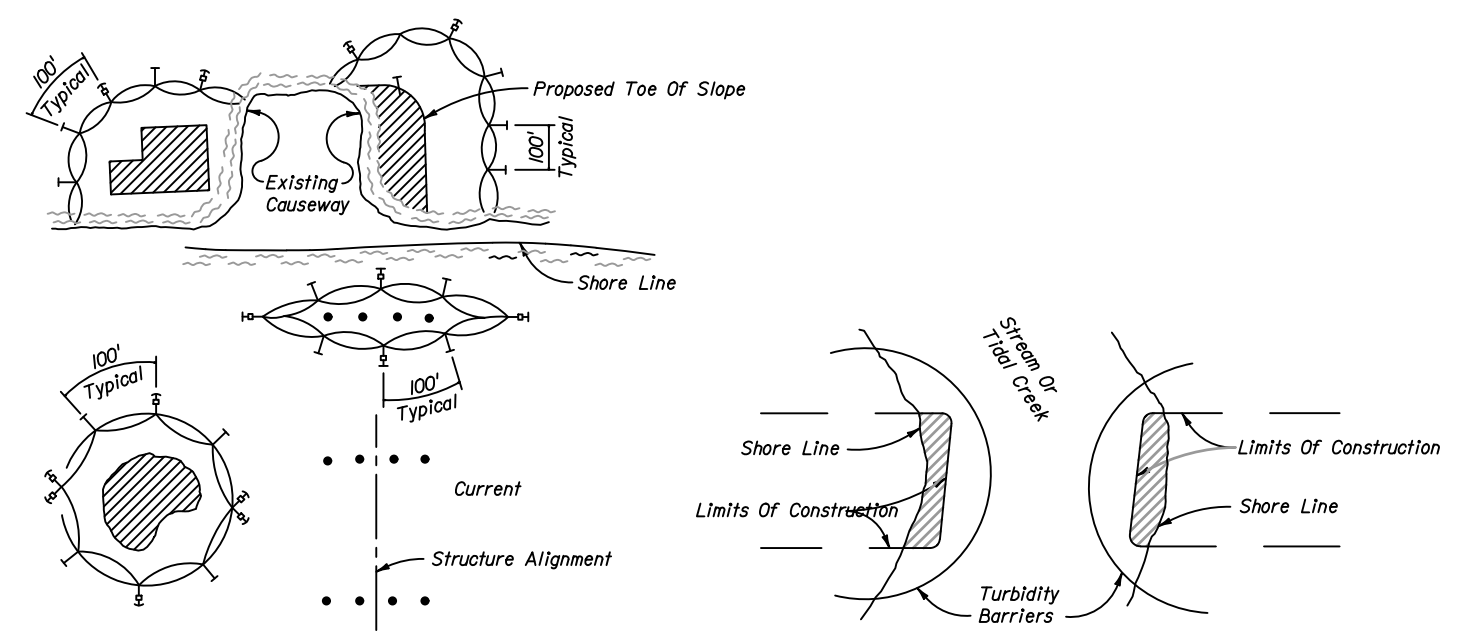
$D_1 = 5'$ Std. (Single Panel For Depths 5' or Less).
 $D_2 = 5'$ Std. (Additional Panel For Depths > 5').
Curtain To Reach Bottom Up To Depths Of 10 Feet,
Two(2) Panels To Be Used For Depths Greater Than
10 Feet Unless Special Depth Curtains Specifically Called
For In The Plans Or As Determined By The Engineer.

NOTICE: COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.



- LEGEND**
- Pile Locations
 - ▨ Dredge Or Fill Area
 - Mooring Buoy w/Anchor
 - Anchor
 - Barrier Movement Due To Current Action

- NOTES:**
1. Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
 2. Number and spacing of anchors dependent on current velocities.
 3. Deployment of barrier around pile locations may vary to accommodate construction operations.
 4. Navigation may require segmenting barrier during construction operations.
 5. For additional information see Section 104 of the Standard Specifications.



TURBIDITY BARRIERS
SCALE: NONE

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:

Craven • Thompson and Associates, Inc.
ENGINEERS • PLANNERS • SURVEYORS
3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
FAX: (954) 739-6409 TEL: (954) 739-6400
FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS NO. 271
FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS NO. C000114

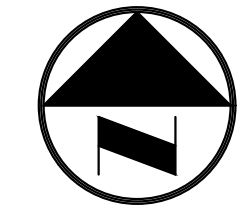
SW 54th PLACE DRAINAGE SECTION 33, TOWNSHIP 50, RANGE 40 BROWARD COUNTY, FLORIDA

EROSION CONTROL PLAN
PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

PROJECT NO.
22-0067-001-01

SHEET NAME
C-9
SHEET **9** OF **11**

Glen Harrelson, P.E.
Florida P.E. No. 62939
June 27, 2023

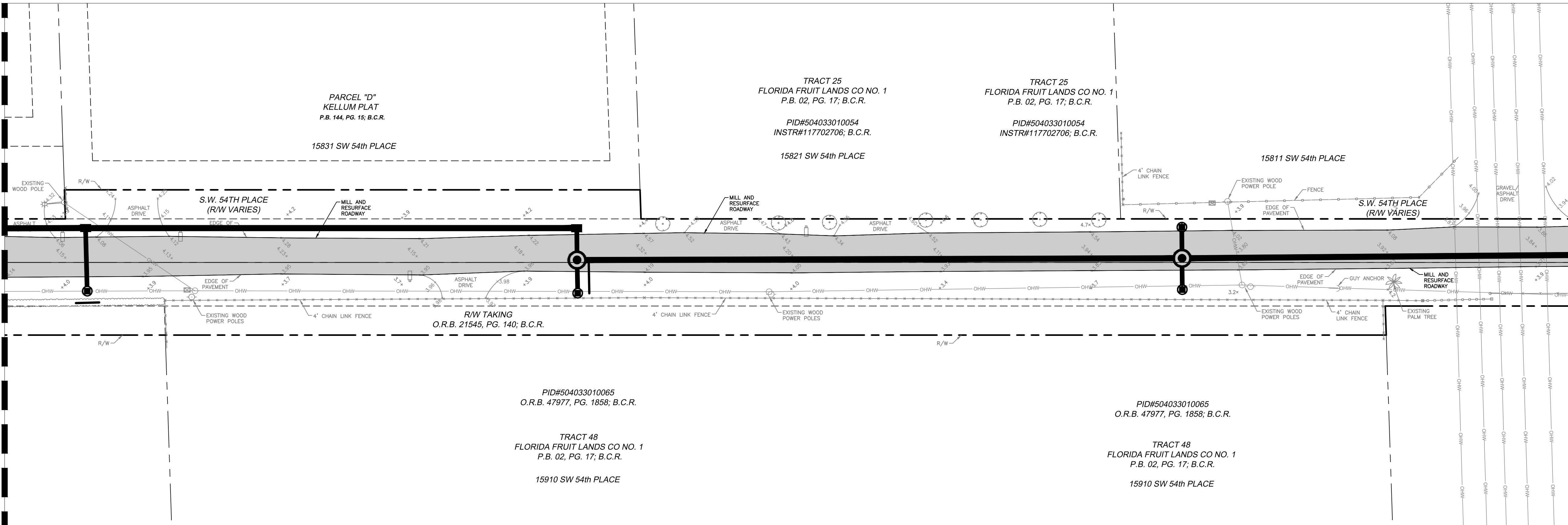
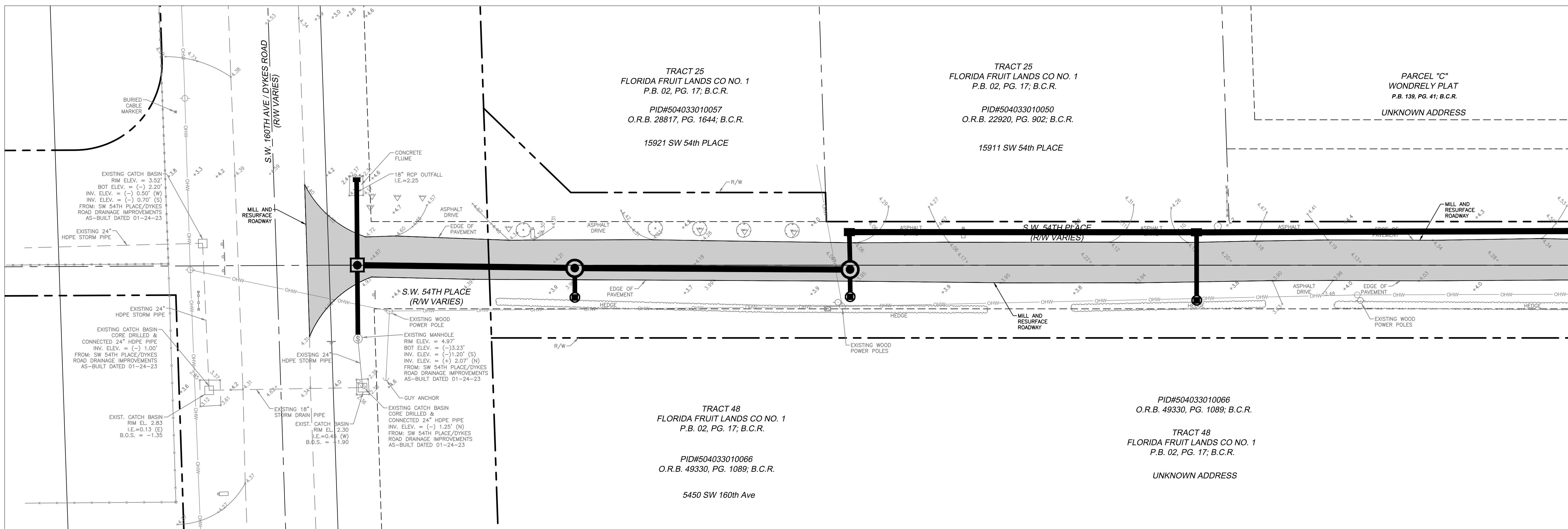


0 20' 40'

LEGEND

MILL AND RESURFACE

MATCH LINE SEE BELOW



MATCH LINE SEE ABOVE

MATCH LINE SEE SHEET C-11

R:\Engineering\2022\22-0667-001-01 PAV.dwg [C-10] Jun 27, 2023 4:11pm GHARRELSON

Glen Harrelson, P.E.
Florida P.E. No. 62939
June 27, 2023

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:

DATE: 11/04/2022
SCALE: 1" = 20'
DESIGN BY: GH
DRAWN BY: GH
CHECKED BY: P/JG
APPROVED BY:

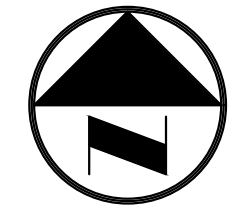


SW 54th PLACE DRAINAGE
SECTION 33, TOWNSHIP 50, RANGE 40
BROWARD COUNTY, FLORIDA

PAVEMENT PLAN
PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

PROJECT NO.
22-0667-001-01

SHEET NAME
C-10
SHEET 10 OF 11



0 20' 40'

LEGEND

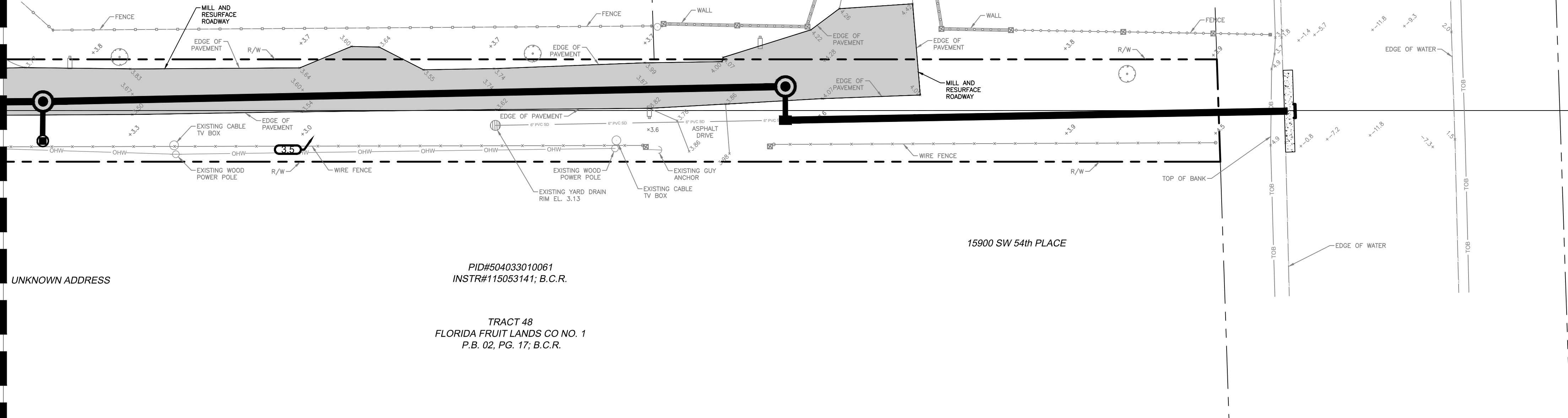
MILL AND RESURFACE

MATCH LINE SEE SHEET C-10

TRACT 25
FLORIDA FRUIT LANDS CO NO. 1
P.B. 02, PG. 17; B.C.R.
PID#504033010052
O.R.B. 50484, PG. 1307; B.C.R.
15811 SW 54th PLACE

TRACT 25
FLORIDA FRUIT LANDS CO NO. 1
P.B. 02, PG. 17; B.C.R.
PID#504033010051
INSTR#116095155; B.C.R.
15801 SW 54th PLACE

100' DRAINAGE EASEMENT
O.R.B. 13067, PG. 190; B.C.R.



UNKNOWN ADDRESS

PID#504033010061
INSTR#115053141; B.C.R.

TRACT 48
FLORIDA FRUIT LANDS CO NO. 1
P.B. 02, PG. 17; B.C.R.

R:\Engineering\2022\22-0067-SW 54th Place Drainage\Drawings\22-0067-001-01 PAV.dwg [C-11] Jun 27, 2023 4:11pm GHARRELSON

Glen Harrelson, P.E.
Florida P.E. No. 62939
June 27, 2023

DESCRIPTION:	BY:	DATE:	DESCRIPTION:	BY:	DATE:

CRAVEN • THOMPSON AND ASSOCIATES, INC.
 ENGINEERS • PLANNERS • SURVEYORS
 3563 N.W. 53RD STREET, FORT LAUDERDALE, FLORIDA 33309
 FAX: (954) 739-6409 TEL: (954) 739-6400
 FLORIDA LICENSED ENGINEERING, SURVEYING & MAPPING BUSINESS No. 271
 FLORIDA LICENSED LANDSCAPE ARCHITECTURE BUSINESS No. C000114

SW 54th PLACE DRAINAGE
SECTION 33, TOWNSHIP 50, RANGE 40
BROWARD COUNTY, FLORIDA

PAVEMENT PLAN
PREPARED FOR:
TOWN OF SOUTHWEST RANCHES

PROJECT NO.
22-0067-001-01

SHEET NAME
C-11
SHEET 11 OF 11